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CITY OF SANTA MONICA




Conservation • Open Space • Scenic Corridors

THE CONSERVATION ELEMENT

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CONSERVATION ELEMENT

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Herbert Katz

Robert L. Lonsinger

David H. Roper

Pat Schneider

Prepared by the

CITIZENS ADVISORY COMMITTEE

Adopted by the

CITY COUNCIL OF SANTA MONICA

September 10, 1975

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RESOLUTION NO. 4682 (CCS)
(City Council Series)

**A RESOLUTION OF THE CITY COUNCIL OF
THE CITY OF SANTA MONICA ADOPTING A
CONSERVATION ELEMENT OF THE MASTER PLAN
FOR THE CITY OF SANTA MONICA.**

WHEREAS, the Citizens Advisory Committee has considered and approved the Conservation Element of the Master Plan for the City of Santa Monica; and,

WHEREAS, the Planning Commission of the City of Santa Monica has considered and approved the Conservation Element of the Master Plan for the City of Santa Monica; and,

WHEREAS, the Planning Commission of the City of Santa Monica has transmitted the endorsed and approved Conservation Element of the Master Plan for the City of Santa Monica to the City Council of the City of Santa Monica; and,

WHEREAS, the City Council of the City of Santa Monica has held a public hearing on the Conservation Element of the Master Plan for the City of Santa Monica.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF SANTA MONICA DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. That the Conservation Element of the Master Plan for the City of Santa Monica is hereby adopted.

SECTION 2. The City Clerk shall certify to the adoption of this resolution, and thenceforth and thereafter the same shall be in full force and effect.

ADOPTED AND APPROVED THIS 10th day of September, 1975

Nathaniel Trives
Mayor

ATTEST:
City Clerk

INTRODUCTION

SUMMARY

The Conservation Element is one of nine interrelated elements required under state guidelines for a city's general plan. These guidelines set forth primary areas of concern related to the proper management and conservation of a community's natural resources. They also include secondary suggestions to offer a broad spectrum of subject matter which can be considered.

Each community differs in the type of resources it may possess and in the ordering of importance it gives these resources. To reach this determination an inventory or identification of existing conditions, within and affecting the city, must be made. Paralleling this task should be an effort to focus on the goals and general direction that the community would like to take. These are combined to derive appropriate policies and programs with which to implement those policies. This is the sequence taken in this element.

The first section contains those Goals and Objectives developed by the Citizens' Advisory Committee, which were applicable to the subject of conservation. Following this is a brief evaluation of the resources directly affecting and influencing the various aspects of life in Santa Monica. These were divided into four sections: Beach, Water, Land and Air Resources, each of which had sub-categories. Water as the most substantial subject deals with both potable water as a life sustaining resource and with ocean water as a recreational and aesthetic resource. Under this and the other three sections the resources identified included those within the City, those adjacent to the City to which the City exerts varying degrees of control and also those resources on which the City depends or by which it is impacted, but has little control or influence.

The final portion of the Element contains the policy statements which hopefully blend the goals and the evaluation of existing conditions in proper proportions. Then the programs necessary for the implementation are offered.

AUTHORITY

The following excerpt is from the document, "Guidelines for Local General Plans," created by the California Council on Inter-governmental Relations and issued September 20, 1973.

Government Code Section 65302(d) requires a conservation element of all city and county general plans, as follows:

A conservation element for the conservation, development, and utilization of natural resources including water and its hydraulic force, forest, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. That portion of the conservation element including waters shall be developed in coordination with any county-wide water agency and with all district and city water agencies which have developed, served, controlled or conserved water for any purpose for the county or city for which the plan is prepared. The conservation element may also cover:

- (a) The reclamation of land and waters.
- (b) Flood Control.
- (c) Prevention and control of the pollution of streams and other waters.
- (d) Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan.
- (e) Prevention, control and correction of the erosion of soils, beaches and shores.
- (f) Protection of watersheds.
- (g) The location, quantity and quality of the rock, sand and gravel resources.

PURPOSE OF ELEMENT

The purpose of this element was to incorporate the state guidelines with the citizens' goals and objectives in an acceptable fashion. The contents hopefully adhere to the intentions of each of these documents while attempting to merge their separate directions into one comprehensive element.

It further attempted to offer an evaluation of the city's natural resources as a basis for future decision-making with regard to the city's development. It is not intended to preclude the importance of other conditions, or new ones, simply on the basis of their omission in this draft. Rather this element should be regarded as a foundation or spring board upon which new considerations may and should be generated.

RELATIONSHIP TO OTHER ELEMENTS

The Conservation Element provides a major policy input into the land use and circulation elements. Its concerns are related directly, and in fact overlap many of the concerns of the Open Space and Scenic Highway Elements.

These subjects are handled more completely in their own elements and therefore are not dealt with in this draft. Although future coordination between these elements will undoubtedly result in ameliorating some or all of them.

DEFINITION OF TERMS

Conservation is the planned management, preparation and wise utilization of natural resources. The objective of conservation is to prevent the wasteful exploitation, destruction or neglect of the resources. The local conservation planning process and program should acknowledge and detail the environmental processes relevant to the jurisdiction.

STATEMENT OF GOALS & OBJECTIVES

FROM THE CITIZENS ADVISORY COMMITTEE:

GOAL: Preservation of the ecological balance and natural resources of the city and conservation of the energies and materials without serious interference with community needs.

OBJECTIVES:

1. Preserve areas that should be permanently protected for future generations due to their unique structure, historical importance, and natural beauty.
2. Recognize and maintain the natural coastline as a major physical resource.
3. Seek regional funding for the maintenance and development of the Santa Monica beaches as a recreational asset.
4. Consider environmental impacts as a decision-making factor in planning.
5. Sponsor transportation modes which reduce energy consumption and air pollution.
6. Encourage activities and efficient operations which favor energy conservation.
7. Insure that those resources necessary for the maintenance and enhancement of the health and well being of the city be conserved and protected.

GOAL: An atmosphere free of air pollution.

OBJECTIVES:

1. Eliminate all detrimental sources of air pollution.
2. Encourage lowest feasible emissions from stationary and moving sources.
3. Cooperate with and support federal, state and regional efforts to reduce smog and pollution.
4. Reduce the total volume of vehicular traffic.

GOAL: A community whose appearance is in harmony with its self and its setting.

OBJECTIVES:

1. Establish certain areas as visually important due to location, architectural or natural beauty, and establish general design criteria for new development in these areas.
2. Conserve and enhance the appearance of our oceanfront.

IDENTIFICATION & EVALUATION OF RESOURCES

WATER RESOURCES

Water, as a natural resource, may be appraised in a variety of ways. In terms of aesthetics, especially visual fulfillment and the satisfaction of open space it plays one role by enhancing the quality and enjoyment of peoples life styles. As a generator and source of recreation it meets many active needs of people. In terms of hydraulic force it can pose either a health and safety problem when considering flood control or a potential source of energy. Bodies of water may be viewed as ecological niches where various biological forms thrive, often to the enjoyment and enrichment of a community. This consideration becomes important when endangered or uniquely indigenous life forms are involved. Water should also be regarded in terms of its renewability as in reclamation or desalinization.

In its primary function, people depend on culinary or potable water as a life sustaining force in the health and well being of their community. It is essential, to this end, that a high quality of water be maintained, that existing sources of potable water be conserved and that new sources be sought.

It is the intent of this section to evaluate the different aspects of water that have been mentioned. It is not intended that other aspects, which have been inadvertently excluded, should not be considered at such time that their importance is determined. This determination would depend on citizen input reflecting the communities' values.

POTABLE WATER

In order to adequately deal with the most appropriate procedures for domestic water conservation, the source, quality and amounts of water currently available must be assessed. In turn the appropriate standards and criteria must be determined to assure a continued high quality of water. Policies and programs should be established in conjunction to guarantee future supplies.

Sources

The City of Santa Monica meets its domestic water needs via two main sources. These are locally owned well water and the Metropolitan Water District of Los Angeles or the MWD. The water imported through MWD, until recently was primarily either Colorado River water or State Project water with only slight mixtures occurring occasionally. This water is now, as of July 1972, exclusively received from the State Project water with Colorado water acting only as a reserve. Imported water currently constitutes approximately 60% of the City's supplies with local wells providing the remaining 40%. Over the 10 year period between 1960 and 1970 the percentage of total water production, derived from local wells has ranged from a low of 23% in 1961-1962 to a high of 46% in 1968-1969, leveling out in recent years to about 40% of the total supply. Table 1 shows the individual trends.

The maximum output of all of Santa Monica's existing wells is currently about 9 mgd (million gallons per day), although normal operation usually falls below this, between 6 and 7 mgd. The reason is to provide a safe margin and avoid possible dangers of overdrawing the basins which could result in salt water intrusion, causing degradation of the ground water basins. This most likely would occur only after extended periods of overdrawing but it is still worthy of concern.

Population projections have established the future need for new sources of water. These sources can be satisfied, in part, by increasing imported supplies. However recent water resource studies++ have indicated that local ground water can be more fully utilized to also satisfy these needs. It has been estimated that new wells could increase production by 50% to a peaking capacity of 12.7 mgd, while still ensuring the continued viability and preservation of effected ground water basins. Paralleling these figures shows that the current

ratio of local water to total city needs (41%) would only drop slightly with increase in demand. Table 2 indicates this over the next 30 years.

TABLE 1: Water Production by Source

Fiscal Year	Total Acre-Ft.	% of Total Acre - Ft.			
		Arcadia Wells	Charnock Wells	Total Local	MWD
1973-1974*	17,263	15.5	27.6	43.1	56.9
1972-1973*	17,717	14.3	28.6	42.9	57.1
1971-1972*	18,119	14.6	28.7	43.3	56.7
1970-1971+	17,100	9.1	23.7	32.8	67.2
1969-1970+	17,069	28	35.3	38.1	61.9
1968-1969+	16,940	4.7	41.0	45.7	54.3
1967-1968+	16,879	5.3	34.8	40.1	59.9
1966-1967+	15,629	6.0	28.7	34.7	65.3
1965-1966+	15,566	7.3	21.3	28.6	71.4
1964-1965+	14,930	4.6	24.9	29.5	70.5
1963-1964+	14,719	0.7	25.9	26.5	73.4
1962-1963+	14,416	0.0	26.3	26.3	73.7
1961-1962+	13,978	0.7	22.1	22.8	77.2
1960-1961+	14,459	2.4	21.8	24.2	75.8

* Water Division, City of Santa Monica

+ James Montgomery, Consulting Engineers, 1972

The benefits from increased local production are primarily economic. Locally produced water is simply far less expensive than imported water. Current costs for 1975 of MWD water is \$73/acre-ft. and the figure is scheduled to increase to \$78/acre-ft. next year. This water is pumped from northern California which requires large amounts of energy. The costs of this energy are projected to continually increase and these costs as well as other service, operational and market costs will necessitate a constant increase in the price of MWD water. Whereas any increase in cost of locally produced water, which is already minimal in comparison to water imported from MWD, would be only operational and service maintenance costs. Another benefit

from locally produced water is that it decreases the city's dependence on outside agencies and resources, at least to a certain degree.

TABLE 2: Future Water Production by Source*

Year	Avg. Daily Total (MGD)	Maximum Daily Demand			
		Total(MGD)	MWD(MGD)	Local(MGD)	Local(%)
1975	17.61	26.95	18.95	8.0	29.6%
1980	19.23	29.42	19.42	10.0	33.9%
1985	20.48	31.33	18.72	12.61	40.0%
1990	21.65	33.10	20.47	12.63	38.0%
1995	22.59	34.56	21.88	12.68	36.6%
2000	23.31	35.66	22.96	12.70	35.6%
2005	23.79	36.40	23.68	12.72	34.9%

* Source: James Montgomery, Consulting Engineers, 1972

++ Environmental Assessment of Water System Jones & Stokes Associates, Sacramento, 1974.

Quality Standards

Standards for the quality of potable water are determined primarily by the California Department of Public Health and monitored by the City's water division. These standards set limits for allowable amounts of various chemical, mineral and biological quantities to ensure that the health and well being of a community is maintained.

The City of Santa Monica has established certain standards of its own which in many cases exceed the minimum standards and are superior to those set by state and federal agencies. These higher goals for water quality apply to the following water constituents: Turbidity, Barium, Boron, Chloride, Cyanide, Sulfate and Total Dissolved Solids.* (See Figure I, Page16) The city also has a concentrated program on reducing the hardness of local water supplies.

The City has operated a water softening plant since 1968 at the Arcadia reservoir site (located near the intersection of Wilshire Boulevard and Bundy Drive). It utilizes ocean salt water in a process which removes the hardness and turbidity found in local water, to an acceptable level. The city water division is also engaged in on-going monitoring schedules to ensure that all other factors pertinent to the quality of water supplies are considered and that the state standards are maintained.

RECLAMATION

Santa Monica does not currently have a reclamation program for the recycling of waste water to potable water. It is a determination of the water division that such a program would not be economically advantageous for the city. The costs of implementing and operating the necessary facilities for a reclamation pro-

gram are only justified if they provide less expensive water than can be bought from the MWD. This lower price is dependent upon having a rather large scale operation and the population of Santa Monica is not currently large enough to reach the necessary level of waste generation. However, a joint program with adjoining communities may prove to be feasible and such a consideration should be pursued. Similar size constraints apply to a desalinization program and in addition technological problems severely decrease the economic feasibility. But research in this field may also prove worthwhile. The city now contracts with Los Angeles to process all sewage at the Hyperion Plant, south of Santa Monica. The sewage is given varying degrees of treatment before being discharged in Santa Monica Bay. It is transmitted through two pipes, one going 5 miles out and the other 7 miles.

As a result of the raw sewage not being fully treated the pollution levels in Santa Monica Bay have increased considerably in recent years. Continuation of such trends may lead to the creation of a "dead sea" of sludge off our coastline that would be a hazard to the public health. In addition various base metals such as lead and arsenic enter the bay untreated and have great potential to cause biological harm. In order to avoid these problems in the future it will be necessary to treat all sewage on a primary, secondary and tertiary basis.

FLOOD CONTROL

The Director of the Public Works Department has stated that the entire city is fully served by more than adequate flood control drainage systems. The city traditionally does not receive severe or extensive amounts of rainfall and in addition there are no areas which are prone toward flooding due to their geographic characteristics. It therefore can be safely asserted that there does not exist any danger of flooding in the city under normal circumstances.

The Federal Insurance Administration (FIA) which is a division of the Department of Housing and Urban Development has established a federally subsidized insurance program to make flood insurance available at reasonable rates to local communities. The program was created in conjunction with the Flood Disaster Protection Act passed by Congress in December 1973. The City Council of Santa Monica voted on July 8, 1975 to participate in the federal program to avoid any potential problems with receiving certain federal funds and also to avoid endangering the granting of certain real estate loans. The federal funding and the real estate loans could be contingent upon city participation in the program under prevailing circumstances. To safeguard the city and its citizens against these potential problems the city will participate in the program until circumstances no longer predicate the need for that participation.

CONSTITUENT	SYMBOL	UNITS	TYPICAL VALUES ⁽¹⁾							CDPH AND USPHS RECOMMENDED LIMITS OR MAXIMUM CONCENTRATIONS	CITY DISTRIBUTION SYSTEM GOALS
			MWD NORTHERN CALIF WATER ⁽²⁾	MWD COLORADO RIVER WATER	CHARNOCK WELLS	ARCADIA WELLS	SANTA MONICA WELLS	250' PRESSURE ZONE ⁽³⁾	350' PRESSURE ZONE		
PHYSICAL											
COLOR	-	units	NA	NA	0	0	0	0	0	15	<1
ODOR	-	Unpleasant number	<3	<3	<3	<3	<3	<3	<3	3	<3
TASTE	-	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
RESIDUE	-	mg/l	-	-	-	-	-	-	-	-	-
TURBIDITY	-	T.U.	0.10-0.75	0.1-0.40	0.1-8.0	0.20-0.60	0.05-0.10	0.06-0.50	0.10-0.50	5.0	<0.5
CHEMICAL											
ALKYL BENZENE SULFONATE	ABS	mg/l	NA	NA	.00	.00	.00	.00	.00	0.5	<0.5
ALUMINUM	Al	mg/l	NA	NA	(4)	(4)	(4)	(4)	(4)	-	<0.05
ARSENIC	AS	"	NA	NA	.00	.00	.00	.00	.00	0.10	<0.10
BARIUM	Ba	"	0	0	0	0	0	0	0	1.0	<0.10
BICARBONATE	HCO ₃	"	90-110	145	250-300	220-235	260-275	200-280	100-230	-	-
BORON	B	"	0.0-0.1	0.11	.00	.00	.00	.00	.00	1.0	<0.5
CADMIUM	Cd	"	NA	NA	.00	.00	.00	.00	.00	0.01	<.01
CALCIUM	Ca	"	30-40	36-87	90-130	85-95	100-120	70-40	30-40	-	-
CARBONATE	CO ₃	"	0	1	0	0	0	0	0	-	-
CARBON-ALCOHOL EXTRACT	CAE	"	NA	NA	-	-	-	-	-	3.0	<3.0
CARBON-CHLOROFORM EXTRACT	CCE	"	NA	NA	-	-	-	-	-	0.7	<0.7
CARBON DIOXIDE, FREE	CO ₂	"	2-5	1	17-37	30-40	40-45	25-35	10-15	-	-
CHLORIDE	Cl	"	40-110	100-106	60-120	65-90	70-85	70-100	60-90	500	<250
CHROMIUM, HEXAVALENT	Cr ⁶⁺	"	<.05	.01	.00-.01	.00	.01	.00	.00	0.05	<0.05
COPPER	Cu	"	NA	NA	.00	.00	.00	.00	.00	1.0	<1.0
CYANIDE	CN	"	NA	NA	.00	.00	.00	.00	.00	0.2	<0.1
ELECTRICAL CONDUCTIVITY (EC100 @ 25°C)	EC	micromhos	400-600	1180-1260	950-1320	900-950	1150-1250	1000-1250	500-1000	800	<800
FLUORIDE	F	mg/l	0.3-0.5	0.5	0.3-0.5	0.3-0.5	0.2-0.3	0.3-0.5	0.3-0.5	0.8-1.7	-
HYDROGEN ION CONCENTRATION	pH	-	8.3	8.2	7.3	7.1	7.2	8.0	8.0	-	8.0
IRON	Fe	mg/l	.02-.10	.02	0.25	0.20	.03	.02-.10	.02-.10	0.30	<0.3
LEAD	Pb	"	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	<.05
MAGNESIUM	Mg	"	12-15	15-32	30-50	35-45	40-50	12-30	12-20	150	<150
MANGANESE	Mn	"	<.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.05
MERCURY	Hg	"	NA	NA	<.001	0.001	0.004	<.001	.001	0.005	<.005
METHYL-BLUE-ACTIVE SUBSTANCES	MBAS	"	NA	NA	.01-.03	.02	.04	.00	.00	0.5	<0.5
NICKEL	Ni	"	NA	NA	0	0	0	0	0	-	-
NITRATE	NO ₃	"	1.0-4.0	1.0-1.1	1.0-21	16	30	5.0-18.0	1.0-5.0	10	<10
NITRITE	NO ₂	"									
PHENOLS	C ₆ H ₅ OH	"	NA	NA	0.000	0.000	0.000	0.000	0.000	0.001	<0.001
POTASSIUM	K	"	2.0-5.0	4-5	2.2-2.6	2.0-2.3	2.0	7.0-12.0	4.0-7.0	-	-
SODIUM	Na	"	NA	NA	.000-.008	.006	.001	.000	.000	0.01	<.010
SILICA	Si	"	7-12	7.5-8	12	10	13	9	9	-	-
SILVER	Ag	"	NA	NA	.00	.00	.00	.00	.00	.05	<.05
SODIUM	Na	"	45-55	113-207	56-76	50-55	70-77	180-230	80-100	-	-
SULFATE	SO ₄	"	65-90	325	-	-	234	170-230	75-100	500	<250
TOTAL DISSOLVED SOLIDS	TDS	"	300-375	740-780	550-800	550-600	700-725	500-750	250-450	1000	<500
ZINC	Zn	"	NA	NA	.01	.00	.01	.00	.00	5.0	<5.0
HARDNESS											
TOTAL HARDNESS	TH	"	125-190	130-340	430-450	380-390	400-450	170-150	120-180	-	<125
CARBONATE HARDNESS	-	"	75-90	100-105	205-245	180-190	215-225	95-110	150-230	-	-
NON-CARBONATE HARDNESS	-	"	50-100	30-235	225-205	200	185-225	25-40	0	-	-
TOTAL ALKALINITY	TA	"	90-110	121-125	250-300	270-230	260-275	115-130	180-280	-	-
RADIOACTIVITY											
ALPHA EMITTERS	Alpha	pCi/l	NA	NA	-	-	-	-	-	1000	<1000
GROSS BETA ACTIVITY	Beta	pCi/l	NA	NA	-	-	-	-	-	1000	<1000
RADIUM 226	RA 226	pCi/l	NA	NA	-	-	-	-	-	3	<3
STRONTIUM 90	SR 90	pCi/l	NA	NA	-	-	-	-	-	10	<10

⁽¹⁾ THESE ARE INTENDED ONLY TO BE REPRESENTATIVE OF VALUES OR RANGES OF VALUES AS OF APRIL, 1973. CURRENT INFORMATION MAY BE OBTAINED AT THE WATER DIVISION OFFICES, CITY HALL.

⁽²⁾ VALUES SHOWN FOR MWD NORTHERN CALIFORNIA WATER ARE TYPICAL OF THOSE IN THE 500' PRESSURE ZONE.

⁽³⁾ VALUES SHOWN FOR THE 250' PRESSURE ZONE ARE TYPICAL OF THOSE FOR TREATED AND SOFTENED LOCAL WATER.

⁽⁴⁾ OBJECTIONABLE AND OFFENSIVE

⁽⁵⁾ BELOW ALUMINUM DETECTABLE LEVELS

NA INDICATES INFORMATION NOT AVAILABLE AT THIS TIME

CITY OF SANTA MONICA Water Quality : Typical Values, Standards and Goals FIGURE I

LAND RESOURCES

MINERALS AND OIL

There is currently no mineral or petroleum production within Santa Monica. Because of the intensity of urban development and the communities aversion to such activities it is unlikely that any future such production will occur.

SOIL AND SOIL EROSION

The soil of Santa Monica is fairly consistent throughout the city with slight variations in composition and bearing. It is composed of alluvial with primarily Lakewood Formation found in northern area of the city and Older Dune Land in the southern section.

There does not appear to be a soil erosion problem within the city with the exception of the Palisades bluffs. Because of the severe slope this area is subject to periodic slippage and erosion. Numerous engineering studies have determined that little can be done to mitigate this without radically altering the character of the bluffs. Terracing or reducing the degree of slope to a safer angle would destroy the aesthetics of the bluff. As a result only marginal stability can be obtained. The primary measure taken is the reduction of water buildup behind the bluffs. This occurs through natural percolation and if left alone can apply enough pressure to cause massive break offs. Catch basins and drainage systems have been installed to divert the buildups.

TERRESTRIAL BIOLOGY

Santa Monica has engaged in an extensive tree planting program for many years. This has resulted in the city now having over 25,000 trees in excess of 120 species. Some of the types found in the city include magnolia, carob, eucalyptus and palm trees. The Department of Recreation and Parks has completed the planting program. Its policy is to only replace those trees now existing when needed and to not allow the removing of a tree if it is still living. The same type of tree is planted on a block with different types on adjoining blocks. This arrangement provides design consistency within individual blocks and a variety of landscaping within the neighborhood. It also lessens the chance of plant disease peculiar to one species, from spreading to the next.

The wildlife indigenous to this area have been fairly well displaced by urban development. The ones remaining are parasitic to man or otherwise able to adapt to the urban environment. Those include rabbits, rodents, skunks, and feral cats and dogs. There are no identified rare or endangered species within the area other than those indicated under Marine Biology.

ENERGY MANAGEMENT

Santa Monica has no electrical generating plants or other major sources of energy production. It can therefore take no direct action on controlling the usual by-products of energy production. It can, however, take steps indirectly by engaging in various actions which lessen the need for energy use. Such action will help to conserve those regional fuel resources upon which Santa Monica depends as well as benefits. It will also mitigate the impact on the air resources and general environment of Santa Monica which unconstrained energy use can affect.

It is therefore in the best interests of Santa Monica to pursue such activities whenever possible.

AIR RESOURCES

Historically, a part of the attraction of Santa Monica as a recreation/settlement center has been clean air and a pleasant Mediterranean climate. Increases in population with resultant increases in vehicle miles traveled have caused the deterioration of air quality over Santa Monica. Clean air is no longer the abundant resource it once was and pollution is effecting the quality of life both as a threat to health and environmentally. But locationally Santa Monica has an advantage, in that, although topographically and meteorologically a part of the Los Angeles Air Basin, pollution levels are not as high as those in Los Angeles. Diurnal changes in wind direction help horizontal dispersion inland or out to sea during day and night respectively; although vertical dispersal of pollutants is limited by frequent temperature inversions. The cities' primary goal for air is the elimination of all detrimental sources of air pollution.

QUALITY STANDARDS

The city's air quality is monitored by the Air Pollution Control District (APCD) at the northwest coastal station and measured in terms of the number of days per year pollutants exceed state air quality standards. The pollutants measured are:

ozone (O₃)

carbon monoxide (CO)

oxides of nitrogen (NO_x)

nitric oxide (NO)

nitrogen dioxide (NO₂)

sulfur dioxide (SO₂)

particulates

The following table indicates the number of days per year acceptable levels were exceeded in Santa Monica.

1973			1974+	
62	17	O ₃	51	14
28	8	CO	21	6
N/A	N/A	NO _x	N/A	N/A
N/A	N/A	NO	N/A	N/A
27	7	NO ₂	35	10
2	5	SO ₂	0	0
14	4	Particulates	N/A	N/A
Days/ Year	%/Yr.		Days/ Year	%/Yr.

+ APCD Figures

* WL Pereira Report

While there have been some reductions in the overall level of photochemical pollutants, overall air quality can be improved by further diminution of stationary and mobile sources.

SOURCES & CONTROL

The greatest detriments to improved air quality conditions are mobile sources of pollution: automobiles and trucks. For example, the strip of land between the Pacific Coast Highway and the shore (encompassing the beach parking lots and bounded by the city limits on the northwest end of the highway and McClure Tunnel, adjacent to the municipal pier, on the southeast end of the highway) constitutes .01% of Los Angeles County's land area.* Due to the intensive use character of this area as much as .5% of the county's air pollutants are generated there on a very active day.

This is a 1:50 ratio of land to pollutants produced.

A number of agencies, jurisdictions and programs already exist to cope with improvement of air quality, both for stationary and mobile sources. At the county level the Air Pollution Control District (APCD) deals with complaints or violations within its jurisdiction. Complaints received from local residents have been sent on to the APCD for enforcement. Lack of follow up complaints suggests remedial action taken by APCD was successful in mitigating or eliminating the offending source.

The Coastal Commission also deals with questions of air quality as it is effected by proposed construction within its jurisdiction. The Environmental Protection Agency (EPA) is concerned on a national scale with the maintenance of high air quality standards. To achieve these goals EPA has initiated a number of programs in the form of a coordinated transportation plan. Part of that plan is the Parking Management Plan (PMP). PMP seeks to improve air quality by reducing vehicle miles traveled (VMT) and by ensuring new or existing parking facilities do not exacerbate the amount of air pollutants.

BEACHES: COASTLINE RESOURCES

Santa Monica Bay and its environs comprise a very special resource to the citizens of Santa Monica as well as being important to the greater region it serves. Its value must be measured in a variety of ways to include its aesthetic and visual assets, its recreational benefits, and its contribution to the excellent climate that Santa Monica enjoys. The importance of this resource is underscored in this section by the inclusion of a special subsection which highlights the values of the citizens of Santa Monica by identifying four primary areas of community concern. This review is followed by the empirical evaluation of existing conditions as found in each of the remaining sections of the Element on Potable Water, Land Resources and Air Resources.

AREAS OF COMMUNITY CONCERN

The major natural resource unique to Santa Monica which most needs to be conserved to prevent wasteful exploitation, destruction or mismanagement is the beachfront and coastal area. This preservation should be designed to primarily protect (1) the visual or aesthetic resources, (2) unique physical structure of area (3) the maintenance of clean and adequate recreational area, and (4) public use and access to beach.

Protection of Aesthetic and Visual Environment

The aesthetic aspects of this section of beach are of prime concern as the panoramic view of Santa Monica Bay is fully visible, not only by beach goers, but from vantage points along Palisades Park. For continued enjoyment of the area, there should be ongoing efforts to prevent development that obstructs or detracts from visual environment, and efforts should be made to extend the natural park-like quality into adjacent areas.

Protection of Unique Physical Structure

The bluffs overlooking the coastline constitute a unique aspect to coastal environment as well as natural beauty and variety in an urbanized area. These should be maintained in their natural state for future generations. Additionally the natural bay and curved coastline, noted for both its beauty and historic significance should be maintained to preserve natural setting.

Protection of Clean and Adequate Recreational Area

Since the beach constitutes a major recreational resource both to residents of Santa Monica and the L.A. area as well as tourists, it is necessary to provide services for the safety, well being and enjoyment of those using area. High in priority is the need to preserve the enlarged beach (sand) areas to accommodate beach goers, and develop water and outdoor recreational opportunity such as tennis and volleyball courts, play areas, boating and picnic facilities.

Protection of Public Use and Accessibility

As a major recreational and natural resource, the enjoyment and use of the beach should be open and accessible to the public.

EMPIRICAL EVALUATION

Physical Setting

A complete description of the physical environment is not appropriate here. There are many documents devoted to an exhaustive analysis of this subject. The intent herein is to briefly refer to those segments which offer the highest impact on the community and those which are most likely to be impacted, (the most apparent subjects of planning).

One of the most significant features is, of course, the beach itself. The Santa Monica State beach is owned by the State of California but the city has responsibility for its operation and maintenance. The beach has been artificially expanded in depth between mean high tide and Pacific Coast Highway over the past 40 years because of the breakwater built in 1934. The normal ocean currents that continually shift sand along the coast are disrupted by the breakwater which acts as an obstacle to this littoral drift. The result has been the deposition of practically all littoral material onto Santa Monica State beach instead of a more even distribution along the rest of the coast. The beach has thus grown to approximately 700 ft. at its widest point. This effect has appeared to stabilize, but the breakwater is now deteriorating and the trend may eventually reverse itself. If the breakwater was to be removed the normal drift patterns would resume and the beach would shrink back to its natural size. On the other hand if it were to be restructured or increased in size it could cause the beach to expand even more.

The enlarged size of the beach has contributed to its use as a regional recreational center, both because of its increased holding capacity and because of the enhancement of its visual quality and general appeal. This effect is compounded by the fact that Santa Monica Freeway, a major collector of inland commuters, feeds directly onto the State beach. So the beach attracts more and is more accessible to a larger portion of the regional population than other beaches. Origin-destination studies conducted during August 1974* indicate a large percentage of people who frequent Santa Monica's beaches represent an extensive inland region. Of the fifteen southern California areas in the study only those which generated above 5% of the total vehicle trips are listed below; the remaining 7 areas add to less than 19% of the total 5470 vehicles which were checked.

Area	% of Total
Culver City, Santa Monica, Venice	14.5
San Gabriel Valley	12.5
Central Los Angeles	15.2
Burbank, Glendale	8.4
Palmdale, North Hollywood	8.3
Beverly Hills, Topanga	10.6
Van Nuys, Encino	6.6
Sepulveda	5.3
Others	18.6
Total	100.0

* Los Angeles Rapid Transit Study; California Department of Transportation.

The resulting impact on the community as well as the regional importance must be considered within those terms.

The regional and local importance of the beach makes it imperative to take measures that will conserve and protect it for future generations. It thus becomes necessary to impose development restrictions in areas where such development will degrade the coastal environment or interfere with the public's right to access. Recognizing the regional importance of the beach, resource management has to be accomplished on a regional as well as local basis.

Marine Biology

The animal life of the bay ranges from a variety of mollusks and crustaceans in the tidal zone to crabs, shovelnose sharks and stingrays in the subtidal zone (deep water). The California Brown Pelican and rarely

seen Double Breasted Cormorant have been designated as rare and endangered species within this area. Other than those birds there is no marine life which can be identified as endangered or suffering severely deleterious effects from pollutants. One significant source of disruption is the occasional proliferation of a microscopic red protozoan, *Gonejanlax polyhedra*, better known as the red tide. It is not known why these animals build up in such large numbers. They pose no health hazard but when they die off and begin decomposing they absorb extensive amounts of oxygen resulting in the possible killing of bottom dwelling organisms through oxygen-starvation. They also emit an offensive odor, which is relatively impossible to control.

Mineral & Oil

The only mineral activity in the past has been the removal of sand from the beaches for construction and other purposes. This has been discontinued and is no longer allowed. No other mineral exploration or mining has occurred or is expected.

Petroleum exploration is another matter however. The national shortage of oil and the expectation of vast oil reserves off the Southern California coast have put extensive pressures on Santa Monica Bay. The City of Santa Monica has jurisdictional powers to a three mile limit but beyond that it can exert little power. Reflecting the prevailing feeling of Santa Monicans against such development, all possible steps to avert it should be pursued.

Water Quality

The quality of water in Santa Monica Bay has been affected by two main sources: waste discharge and storm drainage runoff. The greatest impact comes from massive discharges from Hyperion Plant of the City of Los Angeles, with which Santa Monica contracts for its sewage disposal. Approximately 340 million gallons are discharged into the bay daily through two pipes extending 5 and 7 miles into the bay. The naturally high rate of diffusion keeps the bay well within health standards. The California Water Quality Control Plan has set forth biological standards which Santa Monica Bay has always met. However, the bacterial count has increased over recent years and water quality has been deteriorating. The State Water Quality Control Board is charged with monitoring the bay on a regular basis, and maintaining these standards.

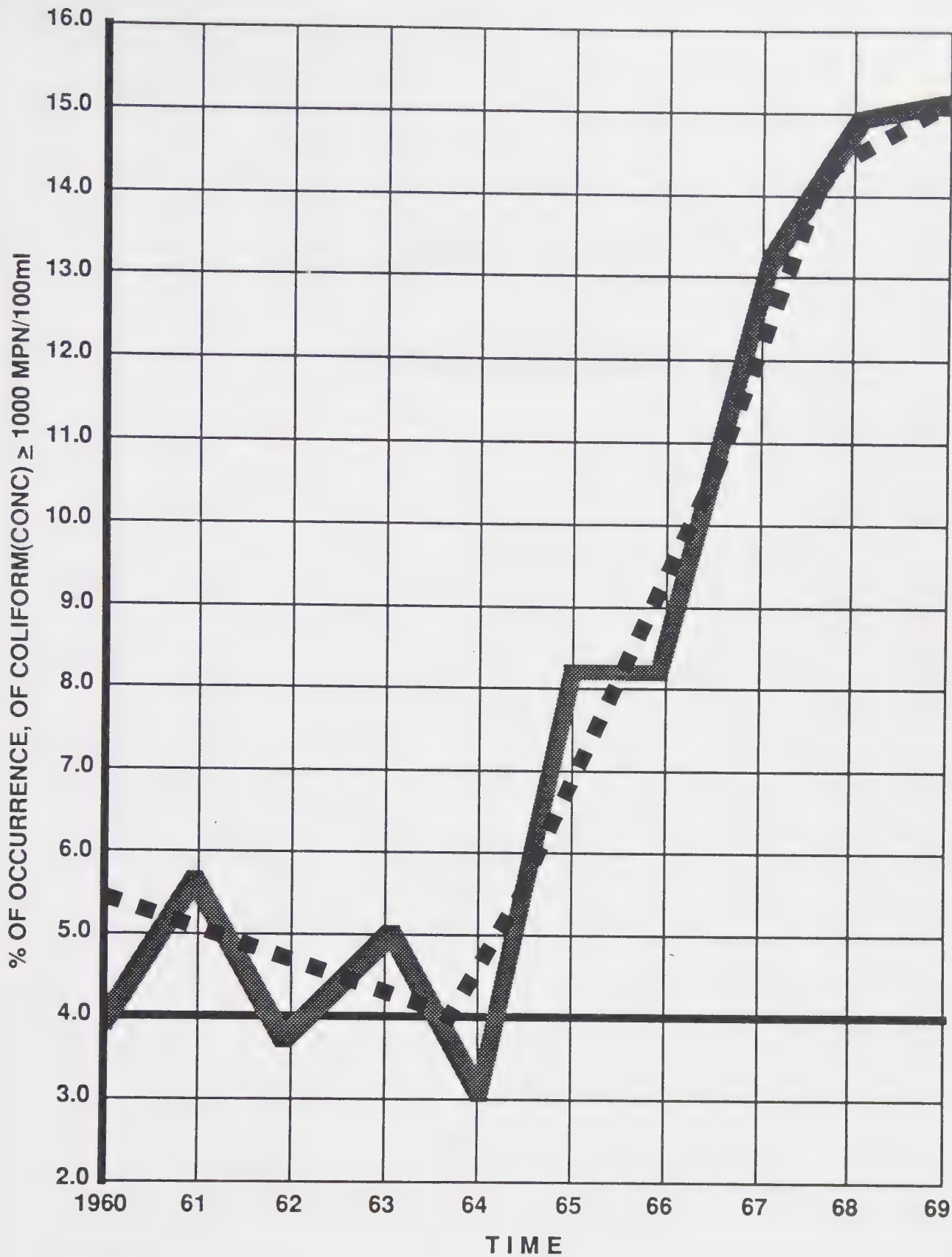
The present California Water Quality Control Plan for ocean waters set the following water quality objectives (SCCWRP, 1973, pp. 363-364):

- a. Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for body-contact sports, the following bacteriological objective shall be maintained throughout the water column: Samples of water from each sampling station shall have a most probable number of coliform organisms less than 1,000 per 100 mL (10 per mL); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 mL (10 per mL), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 mL (100 per mL).
- b. At all areas where shellfish may be harvested for human consumption, the following bacteriological objectives shall be maintained throughout the water column: The median total coliform concentration shall not exceed 70 per 100 mL and not more than 10 percent of the samples shall exceed 230 per 100 mL.

Plate I* (Page 11) illustrates the quality of water at Santa Monica State Beach relative to the assessment parameters of coliform concentrations. Plotted along the abscissa is the interval of time between 1960 and

1969. The ordinate shows the frequency of occurrence (percent) of coliform count exceeding 1,000 MPN (most probable number of organisms) per 100 mL. (SCCWRP, 1973, pp. 378).

Pico drain is the largest storm drain found at Santa Monica State Beach. The effluent within the drain has an average coliform count of approximately 6200 MPN per 100 mL (SCCWRP, 1973, pp. 380). Maximum MPN values range up to 70,000 while minimum readings have been below 4.5. The beach as a whole is fairly-well protected from these localized emissions due to its relatively high rate of diffusion. Although the rate of diffusion is fairly rapid, water-related activities should be kept a safe distance from storm drain outfalls. This distance should be approximately 50 meters given an average set of conditions.



ACTUAL DATA

BEST-FIT CURVE

Coliform Concentrations

Santa Monica State Beach
Plate I

**POLICY STATEMENTS
AND
PROGRAMS FOR IMPLEMENTATION**

POLICY STATEMENTS

- (1) The City shall increase the source of its water supply in accordance with the population.
- (2) The city shall protect and expand (when feasible and desirable) its underground water rights.
- (3) The city water division shall be charged with the responsibility of determining and maintaining the safe level of local well water extraction to obtain the highest possible production while avoiding the hazards of salt water intrusion.
- (4) The city shall actively participate in the protection of water shed areas affecting Santa Monica water supplies.
- (5) The city shall cooperate with adjoining water jurisdictions to investigate the feasibility of artificially recharging, spreading or other means of replenishing ground water basins, when the appropriate technology becomes available, and such action appears to be economically beneficial.
- (6) The city shall protect the city aquifers from contamination by controlling all forms of access or contact such as private wells, industrial dumping or any other type of intrusion into the aquifers which may affect the water quality.
- (7) The city shall continue to strive for higher quality water standards even though they may exceed those of recognized domestic and international agencies and organizations which develop such standards.
- (8) The Public Works Department shall identify and mitigate all potential sources of industrial or commercial pollution, which may adversely affect water supplies stored in city reservoirs or water being pumped into the city.
- (9) The city shall cooperate with adjoining communities for the purpose of reclaiming waste water and improving the sewage treatment processes to include secondary and tertiary treatment.
- (10) The city shall seek to resolve any dispute with the Federal government concerning flood control measures.
- (11) The Public Works Department shall continue to maintain adequate storm drainage and runoff systems, to accommodate flood control requirements.
- (12) The city will maintain the Santa Monica Breakwater in at least its present state.
- (13) The city will encourage maintenance of recreational aspects of the beach area.
- (14) The city shall seek to maintain public use and accessibility to beach.
- (15) The city shall protect the environmental quality of the beach.
- (16) The city shall preserve the scenic environment of the coastal areas, the boundaries of which will be specified in the implementation program section.

- (17) Any development occurring or proposed within the beach area shall be reviewed in terms of its impact on the beach environment.
- (18) The city shall actively participate in all regional, state and federal decision making processes concerning development in adjoining ocean water or land areas in which such development is regarded a serious threat to the continued environmental or aesthetic character of the coastline, or when such development may provide an opportunity to enhance the coast.
- (19) Any proposed mining transport or petroleum operations will be critically reviewed in terms of their impact on the character of the community and the quality of the environment.
- (20) The city should establish efforts to preserve the Palisades Bluffs from erosion or significant alteration as an integral part of the coastal environment.
- (21) The city shall continue the policy of preventing any development or construction that may undermine the safety of the Palisades Bluffs, both at the base and on Palisades Park.
- (22) The city shall encourage the seeding and planting of appealing foliage in vacant lots or expansive underdeveloped portions of developed parcels to mitigate soil loss during inclement weather and also to enhance the appearance of the community.
- (23) The city shall maintain its policy of replacing trees whenever it becomes necessary and of not permitting the removal of any city trees still living and in a healthy condition.
- (24) The city endorses the state standards for insulation requirements within newly constructed residential structures.
- (25) The Public Works Department shall continuously investigate new materials for street surfacing which will enhance energy conservation of vehicles.
- (26) Environmental Impact Reports shall be required for defined building projects located within specified Environmentally Sensitive Areas.
- (27) Transportation planning shall integrate low energy multi-model transportation with a master parking plan, both of which shall aid in reducing excessive vehicle miles traveled and the resultant air pollution.
- (28) The city shall seek to obtain energy, where feasible, from non polluting sources and suppliers.
- (29) The city shall plan for a more effective public transit system as an alternative means of transportation.
- (30) The city shall encourage the use of vapor recovery technology using successful programs of other cities as guidelines.
- (31) The city shall expand the current building codes to require the use of new, as well as known, energy conserving technology and materials when they become available and are deemed practical in economic terms and functional application as well.

PROGRAMS FOR IMPLEMENTATION

- (1) The water division shall supervise the exploration and construction of new potable well water sites and renovation of existing equipment when it is determined to be in the best interests of Santa Monica.
- (2) In order to ensure water rights at those well sites outside the city boundaries the city should optimize production at those sites and increase that production whenever possible, while remaining within safe limits to avoid salt water intrusion.
- (3) Monitoring programs shall be maintained to insure constant adherence to prevailing standards of water quality.
- (4) New methods for the monitoring of water quality should be investigated to ensure all aspects of quality testing are considered.
- (5) The water division shall protect the potable water system from accidental or malicious introduction of contaminants.
- (6) The city should insure the identification and regulation of any construction or activity which is likely to make direct contact with the city's underground aquifers or which may otherwise pose a potential hazard to the quality of water in those aquifers.
- (7) An industry that has produced pollutants in excess of city standards shall pay or remove that portion of its pollutants from whatever water supply is affected.
- (8) The city should consider extending storm drain pipes further out into Santa Monica Bay to lessen any contact between recreation users of the beach and deleterious materials which may be deposited from street runoffs.
- (9) The city should seek federal, state and regional funding to maintain and develop Santa Monica beaches as a recreational asset.
- (10) The city shall determine the rate of deterioration of the breakwater and the resulting effect on littoral drift and the beach and shall seek federal, state and county funding for the study and any subsequent repair of the breakwater if such an endeavor is determined to be worthwhile.
- (11) The city should encourage the state to utilize and open for public access all property between the mean high tide line and the major highway adjoining the beach, presently owned by the state.
- (12) The zoning ordinance should be modified to restrict commercial use, on the beachfront, to facilities which serve public needs for service or recreation.
- (13) The carrying capacity of the beach, in numbers of people and vehicles, should be determined in order to avoid significant or adverse environmental impacts. Efforts should be made to prevent exceeding these capacities by limiting parking diverting traffic to other areas and encouraging the use of alternative recreational facilities, as well as any other acceptable measures which will facilitate this objective.

- (14) The city shall establish liaison with those federal and state agencies responsible for granting permission for development in coastal waters for the purpose of registering the city's official views on such developments.
- (15) Design standards should be developed and imposed on new construction to increase open space and landscaping requirements on Ocean Avenue to enhance its appearance.
- (16) Planning measures should be initiated which will regulate high density and high intensity development in the "coastal area".
- (17) The city shall seek to utilize computerized condition signs on the Santa Monica freeway to warn recreational users when the state beach has reached its carrying capacity and that they should go to other facilities.
- (18) The city shall continue its program of draining water from behind the Palisades Bluffs to avoid soil slip-page off the bluffs and shall investigate other programs of engineering to prevent further erosion of the bluffs.
- (19) Zoning should prevent any building on top of or on the face of the Palisades Bluffs which constitutes a threat to their safety or appearance, or any encroachment on openness and natural beauty of Palisades Park.
- (20) The city shall adopt improved standards on insulation of newly constructed buildings for purposes of energy conservation.
- (21) The city's building code should require the installation of openable windows and operable sash and vents in the exterior walls of all new buildings when a controlled temperature environment is not absolutely necessary. Such requirements will lessen the need for air conditioning and thus reduce energy consumption.
- (22) The city shall study the feasibility of peripheral parking facilities with possible shuttle connections.
- (23) The Public Works Department shall seek to coordinate traffic lights for a more even flow of traffic.
- (24) The city shall actively urge legal controls for cleaner engines through state and federal agencies.
- (25) The city shall increase planting of vegetation known to be effective in pollutant absorption.

ENVIRONMENTAL IMPACT REPORT
ON
THE CONSERVATION ELEMENT

SUMMARY OF FINDINGS

The Conservation Element is inherently general in its nature due to the comprehensive approach it takes. It therefore need only be accompanied by an environmental impact report containing the same degree of specificity.

The adoption and implementation of the Conservation Element will not cause any significant adverse environmental impact to the city. On the contrary the basic intent of this element is to avoid actions which would be detrimental to the natural resources of Santa Monica and thereby enhance the environmental quality and amenities of the city.

DESCRIPTION OF ELEMENT

The Conservation Element addresses itself to the identification of natural resources and delineates goals, objectives, policies, and programs which are aimed at protecting and preserving those resources. The analysis and recommendations offered within the Element apply to all the land within the contiguous boundaries of the City of Santa Monica. It also considers those areas adjacent to the city which may influence or have an effect on the natural resources of Santa Monica. The Conservation Element, when adopted, will become an element of the General Plan of the City of Santa Monica.

GOALS AND OBJECTIVES

The goals and objectives of this element are taken from the policy plan formulated by the Citizens' Advisory Committee. They are:

GOAL: Preservation of the ecological balance and natural resources of the city and conservation of the energies and materials without serious interference with community needs.

OBJECTIVES:

1. Preserve areas that should be permanently protected for future generations due to their unique structure, historical importance, and natural beauty.
2. Recognize and maintain the natural coastline as a major physical resource.
3. Seek regional funding for the maintenance and development of the Santa Monica beaches as a recreational asset.
4. Consider environmental impacts as a decision-making factor in planning.
5. Sponsor transportation modes which reduce energy consumption and air pollution.
6. Encourage activities and efficient operations which favor energy conservation.
7. Insure that those resources necessary for the maintenance and enhancement of the health and well being of the city be conserved and protected.

GOAL: An atmosphere free of air pollution.

OBJECTIVES:

1. Eliminate all detrimental sources of air pollution.
2. Encourage lowest feasible emission from stationary and moving sources.
3. Cooperate with and support federal, state and regional efforts to reduce smog and pollution.
4. Reduce the total volume of vehicular traffic.

GOAL: A community whose appearance is in harmony with itself and its setting.

OBJECTIVES:

1. Establish certain areas as visually important due to location, architectural or natural beauty, and establish general design criteria for new development in these areas.
2. Conserve and enhance the appearance of our oceanfront.

CONSERVATION ELEMENT CONCEPT

The Element proposes that important natural resources be identified and that policies and programs be adopted which will seek to conserve and protect those resources.

The Element further attempts to incorporate the desires set forth by the Citizens' Advisory Committee in the Goals and Objectives Document with the state guidelines for general plans. This is done with respect for both and with the intention of accommodating each of them.

ENVIRONMENTAL IMPACT OF THE PROPOSALS

The adoption of the Conservation Element should not imply that new actions must be instigated which would radically alter the character of Santa Monica in order to conserve its natural resources. Rather, it is intended that the resources which now exist be conserved in their present state and that proper management be employed to ensure their future beneficial use.

As recreational uses continue to accelerate, the beach facilities at Santa Monica will have greater demands for their utilization. The Conservation Element will help to provide these recreational opportunities for as many people as possible without causing detrimental or irreparable damage to the coastal resources.

Adverse environmental impacts are likely to occur in the following areas: (1) restriction of personal vehicle miles traveled, (2) construction of new facilities to accommodate increased recreational needs, (3) construction of new well sites, (4) gradation or diminution of the beach dependent upon the policy regarding the breakwater, and (5) energy conservation measures.

- (1) The restriction of personal vehicle miles traveled would actually be beneficial to the environment. But in terms of the traditional degree of mobility provided citizens it would pose a social impact on citizens accustomed to unlimited use of their private vehicles. Adjustments should be made in personal travel patterns which would provide trade-offs between convenience and improved environmental quality through cleaner air and reduced noise.
- (2) The construction of new facilities to accommodate increased recreational needs would have both short term and long term impacts. Building activity may cause temporary disturbance of the environment by the introduction of heavy construction equipment and construction activity which would generate noise, add some degree of pollution, and disrupt the normal activity. The level of disruption can only be determined by the particular development's intensity. The beach area is likely to receive the greatest impact in these terms.

The long term effects may be more adverse. New facilities will increase the recreational capacity and therefore generate added use. Since Santa Monica beach is a regional resource a large majority of its users rely on the private vehicle to travel to the beach. Any increase in traffic affects the air quality by greater emission of pollutants, increase in noise levels and visual disruption. In addition greater emphasis is placed on police and lifeguard services, littering is likely to increase and aquatic habitats will have that much more difficulty in surviving. The relative degree of all these impacts depends on how much development is promoted or allowed to occur.

- (3) Short term effects of new potable well construction would include generation of noise and the general disruption of normal activity typically brought about by extensive construction. Long term adverse effects may include visual deterioration, diminished land values adjacent to the well sites and destruction of existing foliage. The most serious impact is the potential for harm to the aquifers by overdraft of the wells, which can be avoided by proper management.
- (4) Removal of the breakwater or allowing it to deteriorate would cause a disturbance of the artificial beach equilibrium. Allowing normal wave erosion to occur will result in the gradual depletion of the existing beach, thereby lessening the carrying capacity. A policy to maintain the breakwater through restructuring would ensure the continuation of the existing environment. However this would require an economic impact to be incurred by the taxpayer to finance such construction. The economic loss would be offset by economic returns on a continued and increased recreational use.

- (5) Further economic impact would occur with the requirement for insulation of new buildings and other materials as they become available. This would be a short term impact and over the long term the savings from energy conservation would likely outweigh any initial cost.

ADVERSE EFFECTS WHICH CANNOT BE AVOIDED

The adverse impacts described depend on the policies pursued by the city. They cannot be avoided if the Conservation Element is implemented as proposed. However, it is expected, that these effects will be limited in scope and frequency of occurrence.

The benefits to be derived from the preservation and enhancement of the city's resources outweigh the potential for adverse effects. These resources are scarce, diminishing, and irreplaceable when lost.

MITIGATION MEASURES

Various steps can be followed to mitigate the effect of the adverse impacts which have been described. Construction of recreational facilities can be performed at non-peak recreational periods when possible. Temporary barriers and equipment muffling devices can be utilized to decrease noise. Landscaping and design techniques can be used to conceal unsightly structures such as well pumps, or to blend new facilities with the surrounding environment.

Alternative means of transportation can be developed which will provide greater mobility than current means of public transit. Regional network and systems can offer a viable substitute to the private vehicle for recreational purposes. Greater public support and use of such transit facilities would enhance their economic feasibility. Land use patterns would be employed which would minimize the need for travel by providing localized services.

The carrying capacity of the beach can be controlled by limiting or diverting access. Also, the capability for handling increased numbers of people can be bolstered by such means as enforcing more stringent laws, increasing man power for those services which are burdened and optimizing the use of facilities to avoid under-utilization in isolated areas.

ALTERNATIVES TO THE PROPOSED ACTIONS

Alternatives to the programs suggested in the Conservation Element range from no action at all to more severe methods of conservation. The degree of action taken depends on the priorities established by the city and its citizens as related to particular conservation programs. These priorities in turn reflect the concern and level of dedication that is exhibited towards each and all of the city's resources.

The alternative of no action or no plan would likely cause greater environmental impact than any measures intended to preserve resources. Although individual activities within the city may appear to have no impact, the cumulative effect of many such activities can often render significant impacts to the city, the severity of which depends on the circumstances. To have no conservation plan would leave these cumulative impacts unchecked, as well as those singular developments and activities which in themselves can cause a significant environmental impact.

Areas most likely affected by more or less severe conservation measures would include (1) the beach, (2), the Palisades Bluffs, (3) the ground water basin, and (4) air quality.

- (1) The beach area can increase, decrease or maintain its current range of recreational facilities. To expand facilities would accommodate ever growing regional recreation needs and thus lessen the social impact in this regard. However, it would cause a greater impact on the environment than is now realized. To decrease would reverse the reaction by providing greater protection of this resource but lessening the access and means of enjoying it, thus creating a social impact.
- (2) The issue of the bluffs presents a less difficult situation. To reduce current conservation measures would most assuredly increase the potential for severe impact particularly from massive earth slippage. Engineering studies have indicated that no conservation measures can be undertaken to protect the bluffs more extensively without radically altering their basic character, which would defeat the intent of such measures.
- (3) The extraction of well water from local ground water basins may be increased from current levels to partially meet growing demands. Since the water which recharges these basins renews itself naturally, the water itself is not in danger of depletion. However, the aquifers which store this water can be damaged if too much water is removed from the well resulting in an overdraft. An overdraft can affect the quality of well water as well as the capability to pump it by altering the structure of the aquifers. Therefore, any decrease in a program of extracting well water would aid in the conservation of that water source. A proper management program including continued survey to avoid overdraft would allow for a balance to be struck between optimum utilization of this resource and protection of its viability as a deliverable system.
- (4) The quality of air in Santa Monica is, to a great extent, dependent on forces outside the geographic boundaries and control of the city. Consequently, the means for affecting the conservation of this resource are limited and as such the impact of implementing these means are similarly limited. The primary method for conserving the air quality is by reducing total vehicle miles traveled and thereby reducing total emissions. Since Santa Monica is constrained in how extensively it may affect air quality, it seems essential that the city maximize all available means. Alternatives to a maximum effort would include less restrictions on vehicle miles traveled, thus causing more emissions to be produced. This would contribute to the gradual deterioration of air quality, but maintain personal mobility.

Policies which would more greatly restrict personal vehicle use would have the social impact of decreasing mobility, while improving the level of air quality. There should be new forms and modes of public transit developed in order that a reasonable degree of mobility could be maintained. Whatever balance is achieved must be a determination of public policy reflecting the priorities of mobility and air quality. Other factors affect air quality but the most severe impact is realized when considering this primary source of air pollution - the automobile.

LONG TERM VERSUS SHORT TERM RELATIONSHIPS

The intent of the Conservation Element is that its programs have a long term benefit derived from their implementation. The basic goal is the continued conservation and enhancement of the city's natural resources. Through the comprehensive identification of both essential and desired resources and the development of programs for their protection, scarce and sometimes irreplaceable resources can be preserved for future generations, rather than providing only short term benefits.

IRREVERSIBLE ENVIRONMENTAL CHANGES

The plan does not propose any action which would cause irreversible changes in the environment. On the contrary it attempts to delineate ways of avoiding irreversible changes. This is particularly true when considering the delicate balance currently obtained in the stabilized condition of the Palisades Bluffs. A less extended effort may result in deterioration of this beautiful resource to a point where it could not be returned to its natural state, and thus would be permanently lost.

GROWTH INDUCING IMPACT

The Conservation Element is not designed to promote growth in the city but is designed to conserve resources. The primary aspect of the plan which may indirectly affect growth is in regard to the development of new local wells. The basic intention of this expansion is to meet projected needs for potable water sources as the city grows naturally. It has been speculated that by accommodating projected growth that that growth is actually stimulated. This occurs because by expanding the city's ability to grow it heightens the city's appeal as a place to live. However, it is extremely difficult to assess the validity of this assertion and isolate it from all other growth inducing factors. One conclusion that can be drawn, though, is that by not expanding water resources any population growth within the city, whether natural or otherwise, would most certainly be impeded, if not precluded.

CITY OF SANTA MONICA

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SUMMARY

The Conservation Element is one of nine interrelated elements required under state guidelines for a city's general plan. These guidelines set forth primary areas of concern related to the proper management and conservation of a community's natural resources. They also include secondary suggestions to offer a broad spectrum of subject matter which can be considered.

Each community differs in the type of resources it may possess and in the ordering of importance it gives these resources. To reach this determination an inventory or identification of existing conditions, within and affecting the city, must be made. Paralleling this task should be an effort to focus on the goals and general direction that the community would like to take. These are combined to derive appropriate policies and programs with which to implement those policies. This is the sequence taken in this element.

The first section contains those Goals and Objectives developed by the Citizens' Advisory Committee, which were applicable to the subject of conservation. Following this is a brief evaluation of the resources directly affecting and influencing the various aspects of life in Santa Monica. These were divided into four sections: Beach, Water, Land and Air Resources, each of which had sub-categories. Water as the most substantial subject deals with both potable water as a life sustaining resource and with ocean water as a recreational and aesthetic resource. Under this and the other three sections the resources identified included those within the City, those adjacent to the City to which the City exerts varying degrees of control and also those resources on which the City depends or by which it is impacted, but has little control or influence.

The final portion of the Element contains the policy statements which hopefully blend the goals and the evaluation of existing conditions in proper proportions. Then the programs necessary for the implementation are offered.

AUTHORITY

The following excerpt is from the document, "Guidelines for Local General Plans," created by the California Council on Inter-governmental Relations and issued September 20, 1973.

Government Code Section 65302(d) requires a conservation element of all city and county general plans, as follows:

A conservation element for the conservation, development, and utilization of natural resources including water and its hydraulic force, forest, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. That portion of the conservation element including waters shall be developed in coordination with any county-wide water agency and with all district and city water agencies which have developed, served, controlled or conserved water for any purpose for the county or city for which the plan is prepared. The conservation element may also cover:

- (a) The reclamation of land and waters.
- (b) Flood Control.
- (c) Prevention and control of the pollution of streams and other waters.
- (d) Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan.
- (e) Prevention, control and correction of the erosion of soils, beaches and shores.
- (f) Protection of watersheds.
- (g) The location, quantity and quality of the rock, sand and gravel resources.

PURPOSE OF ELEMENT

The purpose of this element was to incorporate the state guidelines with the citizens' goals and objectives in an acceptable fashion. The contents hopefully adhere to the intentions of each of these documents while attempting to merge their separate directions into one comprehensive element.

It further attempted to offer an evaluation of the city's natural resources as a basis for future decision-making with regard to the city's development. It is not intended to preclude the importance of other conditions, or new ones, simply on the basis of their omission in this draft. Rather this element should be regarded as a foundation or spring board upon which new considerations may and should be generated.

RELATIONSHIP TO OTHER ELEMENTS

The Conservation Element provides a major policy input into the land use and circulation elements. Its concerns are related directly, and in fact overlap many of the concerns of the Open Space and Scenic Highway Elements.

These subjects are handled more completely in their own elements and therefore are not dealt with in this draft. Although future coordination between these elements will undoubtedly result in ameliorating some or all of them.

DEFINITION OF TERMS

Conservation is the planned management, preparation and wise utilization of natural resources. The objective of conservation is to prevent the wasteful exploitation, destruction or neglect of the resources. The local conservation planning process and program should acknowledge and detail the environmental processes relevant to the jurisdiction.

WATER RESOURCES

Water, as a natural resource, may be appraised in a variety of ways. In terms of aesthetics, especially visual fulfillment and the satisfaction of open space it plays one role by enhancing the quality and enjoyment of peoples life styles. As a generator and source of recreation it meets many active needs of people. In terms of hydraulic force it can pose either a health and safety problem when considering flood control or a potential source of energy. Bodies of water may be viewed as ecological niches where various biological forms thrive, often to the enjoyment and enrichment of a community. This consideration becomes important when endangered or uniquely indigenous life forms are involved. Water should also be regarded in terms of its renewability as in reclamation or desalinization.

In its primary function, people depend on culinary or potable water as a life sustaining force in the health and well being of their community. It is essential, to this end, that a high quality of water be maintained, that existing sources of potable water be conserved and that new sources be sought.

It is the intent of this section to evaluate the different aspects of water that have been mentioned. It is not intended that other aspects, which have been inadvertently excluded, should not be considered at such time that their importance is determined. This determination would depend on citizen input reflecting the communities' values.

POTABLE WATER

In order to adequately deal with the most appropriate procedures for domestic water conservation, the source, quality and amounts of water currently available must be assessed. In turn the appropriate standards and criteria must be determined to assure a continued high quality of water. Policies and programs should be established in conjunction to guarantee future supplies.

Sources

The City of Santa Monica meets its domestic water needs via two main sources. These are locally owned well water and the Metropolitan Water District of Los Angeles or the MWD. The water imported through MWD, until recently was primarily either Colorado River water or State Project water with only slight mixtures occurring occasionally. This water is now, as of July 1972, exclusively received from the State Project water with Colorado water acting only as a reserve. Imported water currently constitutes approximately 60% of the City's supplies with local wells providing the remaining 40%. Over the 10 year period between 1960 and 1970 the percentage of total water production, derived from local wells has ranged from a low of 23% in 1961-1962 to a high of 46% in 1968-1969, leveling out in recent years to about 40% of the total supply. Table 1 shows the individual trends.

The maximum output of all of Santa Monica's existing wells is currently about 9 mgd (million gallons per day), although normal operation usually falls below this, between 6 and 7 mgd. The reason is to provide a safe margin and avoid possible dangers of overdrawing the basins which could result in salt water intrusion, causing degradation of the ground water basins. This most likely would occur only after extended periods of overdrawing but it is still worthy of concern.

Population projections have established the future need for new sources of water. These sources can be satisfied, in part, by increasing imported supplies. However recent water resource studies++ have indicated that local ground water can be more fully utilized to also satisfy these needs. It has been estimated that new wells could increase production by 50%, to a peaking capacity of 12.7 mgd, while still ensuring the continued viability and preservation of effected ground water basins. Paralleling these figures shows that the current

ratio of local water to total city needs (41%) would only drop slightly with increase in demand. Table 2 indicates this over the next 30 years.

TABLE 1: Water Production by Source

Fiscal Year	Total Acre-Ft.	% of Total Acre - Ft.			
		Arcadia Wells	Charnock Wells	Total Local	MWD
1973-1974*	17,263	15.5	27.6	43.1	56.9
1972-1973*	17,717	14.3	28.6	42.9	57.1
1971-1972*	18,119	14.6	28.7	43.3	56.7
1970-1971+	17,100	9.1	23.7	32.8	67.2
1969-1970+	17,069	28	35.3	38.1	61.9
1968-1969+	16,940	4.7	41.0	45.7	54.3
1967-1968+	16,879	5.3	34.8	40.1	59.9
1966-1967+	15,629	6.0	28.7	34.7	65.3
1965-1966+	15,566	7.3	21.3	28.6	71.4
1964-1965+	14,930	4.6	24.9	29.5	70.5
1963-1964+	14,719	0.7	25.9	26.5	73.4
1962-1963+	14,416	0.0	26.3	26.3	73.7
1961-1962+	13,978	0.7	22.1	22.8	77.2
1960-1961+	14,459	2.4	21.8	24.2	75.8

* Water Division, City of Santa Monica

+ James Montgomery, Consulting Engineers, 1972

The benefits from increased local production are primarily economic. Locally produced water is simply far less expensive than imported water. Current costs for 1975 of MWD water is \$73/acre-ft. and the figure is scheduled to increase to \$78/acre-ft. next year. This water is pumped from northern California which requires large amounts of energy. The costs of this energy are projected to continually increase and these costs as well as other service, operational and market costs will necessitate a constant increase in the price of MWD water. Whereas any increase in cost of locally produced water, which is already minimal in comparison to water imported from MWD, would be only operational and service maintenance costs. Another benefit

from locally produced water is that it decreases the city's dependence on outside agencies and resources, at least to a certain degree.

TABLE 2: Future Water Production by Source*

Year	Avg. Daily Total (MGD)	Maximum Daily Demand			
		Total(MGD)	MWD(MGD)	Local(MGD)	Local(%)
1975	17.61	26.95	18.95	8.0	29.6%
1980	19.23	29.42	19.42	10.0	33.9%
1985	20.48	31.33	18.72	12.61	40.0%
1990	21.65	33.10	20.47	12.63	38.0%
1995	22.59	34.56	21.88	12.68	36.6%
2000	23.31	35.66	22.96	12.70	35.6%
2005	23.79	36.40	23.68	12.72	34.9%

* Source: James Montgomery, Consulting Engineers, 1972

++ Environmental Assessment of Water System Jones & Stokes Associates, Sacramento, 1974.

Quality Standards

Standards for the quality of potable water are determined primarily by the California Department of Public Health and monitored by the City's water division. These standards set limits for allowable amounts of various chemical, mineral and biological quantities to ensure that the health and well being of a community is maintained.

The City of Santa Monica has established certain standards of its own which in many cases exceed the minimum standards and are superior to those set by state and federal agencies. These higher goals for water quality apply to the following water constituents: Turbidity, Barium, Boron, Chloride, Cyanide, Sulfate and Total Dissolved Solids.* (See Figure I, Page16) The city also has a concentrated program on reducing the hardness of local water supplies.

The City has operated a water softening plant since 1968 at the Arcadia reservoir site (located near the intersection of Wilshire Boulevard and Bundy Drive). It utilizes ocean salt water in a process which removes the hardness and turbidity found in local water, to an acceptable level. The city water division is also engaged in on-going monitoring schedules to ensure that all other factors pertinent to the quality of water supplies are considered and that the state standards are maintained.

RECLAMATION

Santa Monica does not currently have a reclamation program for the recycling of waste water to potable water. It is a determination of the water division that such a program would not be economically advantageous for the city. The costs of implementing and operating the necessary facilities for a reclamation pro-

gram are only justified if they provide less expensive water than can be bought from the MWD. This lower price is dependent upon having a rather large scale operation and the population of Santa Monica is not currently large enough to reach the necessary level of waste generation. However, a joint program with adjoining communities may prove to be feasible and such a consideration should be pursued. Similar size constraints apply to a desalinization program and in addition technological problems severely decrease the economic feasibility. But research in this field may also prove worthwhile. The city now contracts with Los Angeles to process all sewage at the Hyperion Plant, south of Santa Monica. The sewage is given varying degrees of treatment before being discharged in Santa Monica Bay. It is transmitted through two pipes, one going 5 miles out and the other 7 miles.

As a result of the raw sewage not being fully treated the pollution levels in Santa Monica Bay have increased considerably in recent years. Continuation of such trends may lead to the creation of a "dead sea" of sludge off our coastline that would be a hazard to the public health. In addition various base metals such as lead and arsenic enter the bay untreated and have great potential to cause biological harm. In order to avoid these problems in the future it will be necessary to treat all sewage on a primary, secondary and tertiary basis.

FLOOD CONTROL

The Director of the Public Works Department has stated that the entire city is fully served by more than adequate flood control drainage systems. The city traditionally does not receive severe or extensive amounts of rainfall and in addition there are no areas which are prone toward flooding due to their geographic characteristics. It therefore can be safely asserted that there does not exist any danger of flooding in the city under normal circumstances.

The Federal Insurance Administration (FIA) which is a division of the Department of Housing and Urban Development has established a federally subsidized insurance program to make flood insurance available at reasonable rates to local communities. The program was created in conjunction with the Flood Disaster Protection Act passed by Congress in December 1973. The City Council of Santa Monica voted on July 8, 1975 to participate in the federal program to avoid any potential problems with receiving certain federal funds and also to avoid endangering the granting of certain real estate loans. The federal funding and the real estate loans could be contingent upon city participation in the program under prevailing circumstances. To safeguard the city and its citizens against these potential problems the city will participate in the program until circumstances no longer predicate the need for that participation.

CONSTITUENT	SYMBOL	UNITS	TYPICAL VALUES ⁽¹⁾							CDPH AND USPHS RECOMMENDED LIMITS OR MAXIMUM CONCENTRATIONS	CITY DISTRIBUTION SYSTEM GOALS
			MWD NORTHERN CALIF WATER ⁽²⁾	MWD COLORADO RIVER WATER	CHARNOCK WELLS	ARCADIA WELLS	SANTA MONICA WELLS	250' PRESSURE ZONE ⁽³⁾	350' PRESSURE ZONE		
PHYSICAL											
COLOR	-	units	NA	NA	0	0	0	0	0	15	<1
ODOR	-	Threshold number	<3	<3	<3	<3	<3	<3	<3	3	<3
TASTE	-	-	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
RESIDUE	-	mg/l	-	-	-	-	-	-	-	-	-
TURBIDITY	-	T.U.	0.10-0.75	0.1-0.40	0.1-8.0	0.20-0.60	0.05-0.10	0.04-0.50	0.10-0.50	5.0	<0.5
CHEMICAL											
ALETH. BENZENE SULFONATE	ABS	mg/l	NA	NA	.00	.00	.00	.00	.00	0.5	<0.5
ALUMINUM	Al	mg/l	NA	NA	(1)	(1)	(1)	(1)	(1)	-	<0.05
ARSENIC	As	"	NA	NA	.00	.00	.00	.00	.00	0.10	<0.10
BARIUM	Ba	"	0	0	0	0	0	0	0	1.0	<0.10
BICARBONATE	HCO ₃	"	90-110	145	250-300	270-235	260-275	200-280	100-230	-	-
BORON	B	"	0.0-0.1	0.11	.00	.00	.00	.00	.00	1.0	<0.5
CADMIUM	Cd	"	NA	NA	.00	.00	.00	.00	.00	0.01	<.01
CALCIUM	Ca	"	30-60	36-87	90-130	85-95	100-120	70-60	30-60	-	-
CARBONATE	CO ₃	"	0	1	0	0	0	0	0	-	-
CARBON-ALCOHOL EXTRACT	CAE	"	NA	NA	-	-	-	-	-	3.0	<3.0
CARBON-CHLOROFORM EXTRACT	CCE	"	NA	NA	-	-	-	-	-	0.7	<0.7
CARBON DIOXIDE, FREE	CO ₂	"	2-5	1	17-37	30-40	40-45	25-35	10-15	-	-
CHLORIDE	Cl	"	40-110	100-105	50-120	65-90	70-85	70-100	60-90	500	<250
CHROMIUM, HEXAVALENT	Cr+6	"	<.05	.01	.00-.01	.00	.01	.00	.00	0.05	<0.05
COPPER	Cu	"	NA	NA	.00	.00	.00	.00	.00	1.0	<1.0
CYANIDE	CN	"	NA	NA	.00	.00	.00	.00	.00	0.2	<0.1
ELECTRICAL CONDUCTIVITY (EC106 @ 25°C)	EC	micromhos	400-600	1180-1260	950-1320	900-950	1150-1250	1000-1250	500-1000	800	<800
FLUORIDE	F	mg/l	0.3-0.5	0.5	0.3-0.5	0.3-0.5	0.2-0.3	0.3-0.5	0.3-0.5	0.8-1.7	-
HYDROGEN ION CONCENTRATION	pH	-	8.3	8.2	7.3	7.1	7.2	8.0	8.0	-	≥8.0
IRON	Fe	mg/l	.02-.10	.02	0.25	0.20	.03	.02-.10	.02-.10	0.30	<0.3
LEAD	Pb	"	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	<.05
MAGNESIUM	Mg	"	12-15	15-32	30-60	35-45	40-50	12-30	12-20	150	<150
MANGANESE	Mn	"	<.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.05
MERCURY	Hg	"	NA	NA	<.001	0.001	0.004	<.001	.001	0.005	<.005
METHYL-BLUE-ACTIVE SUBSTANCES	MBAS	"	NA	NA	01-03	.02	.04	.00	.00	0.5	<0.5
NICKEL	Ni	"	NA	NA	0	0	0	0	0	-	-
NITRATE	NO ₃	"	1.0-4.0	1.0-1.1	1.0-21	16	30	5.0-18.0	1.0-5.0	10	<10
NITRITE	NO ₂	"	-	-	-	-	-	-	-	-	-
PHENOLS	C ₆ H ₅ OH	"	NA	NA	0.000	0.000	0.000	0.000	0.000	0.001	<0.001
POTASSIUM	K	"	2.0-5.0	4-5	2.3-8.6	2.0-2.3	2.0	7.0-12.0	4.0-7.0	-	-
SELENIUM	Se	"	NA	NA	000-000	004	.001	.000	.000	0.01	<.010
SILICA	Si	"	7-12	7.5-8	12	10	13	12	9	-	-
SILVER	Ag	"	NA	NA	00	00	.00	.00	.00	.05	<.05
SODIUM	Na	"	45-55	113-207	90-70	90-55	70-77	180-230	80-100	-	-
SULFATE	SO ₄	"	65-90	226	-	-	234	170-230	75-100	500	<250
TOTAL DISSOLVED SOLIDS	TDS	"	100-375	740-780	910-000	180-600	700-725	500-750	350-450	1000	<500
ZINC	Zn	"	NA	NA	01	00	.01	.00	.00	5.0	<5.0
HARDNESS											
TOTAL HARDNESS	TH	"	125-190	130-340	420-000	380-390	400-450	120-150	120-180	-	<125
CARBONATE HARDNESS	-	"	75-90	100-100	200-000	180-100	215-225	95-110	150-230	-	-
NON-CARBONATE HARDNESS	-	"	50-100	30-230	220-000	200	185-225	25-40	0	-	-
TOTAL ALCALINITY	TA	"	90-110	121-125	700-000	220-230	260-275	115-130	180-280	-	-
RADIOACTIVITY											
ALPHA EMITTERS	Alpha	pc/l	NA	NA	-	-	-	-	-	1000	<1000
GROSS BETA ACTIVITY	Beta	pc/l	NA	NA	-	-	-	-	-	1000	<1000
RADIUM 226	RA 226	pc/l	NA	NA	-	-	-	-	-	3	<3
STRONTIUM 90	SR 90	pc/l	NA	NA	-	-	-	-	-	10	<10

⁽¹⁾ THESE ARE INTENDED ONLY TO BE REPRESENTATIVE OF VALUES OR RANGES OF VALUES OF LOCAL WELLS. CURRENT INFORMATION MAY BE OBTAINED AT THE WATER DIVISION OFFICES, CITY HALL.

⁽²⁾ VALUES SHOWN FOR MWD NORTHERN CALIFORNIA WATER ARE TYPICAL OF THOSE IN THE MWD PRESSURE ZONE.

⁽³⁾ VALUES SHOWN FOR THE 250' PRESSURE ZONE ARE TYPICAL OF THOSE FOR TREATED AND SOFTENED LOCAL WATER.

⁽⁴⁾ UNOBJECTIONABLE AND UNOFFENSIVE

⁽⁵⁾ BELOW MINIMUM DETECTABLE LEVELS

NO INFORMATION IS AVAILABLE AT THIS TIME

CITY OF SANTA MONICA

Water Quality : Typical Values, Standards and Goals

FIGURE I

LAND RESOURCES

MINERALS AND OIL

There is currently no mineral or petroleum production within Santa Monica. Because of the intensity of urban development and the communities aversion to such activities it is unlikely that any future such production will occur.

SOIL AND SOIL EROSION

The soil of Santa Monica is fairly consistent throughout the city with slight variations in composition and bearing. It is composed of alluvial with primarily Lakewood Formation found in northern area of the city and Older Dune Land in the southern section.

There does not appear to be a soil erosion problem within the city with the exception of the Palisades bluffs. Because of the severe slope this area is subject to periodic slippage and erosion. Numerous engineering studies have determined that little can be done to mitigate this without radically altering the character of the bluffs. Terracing or reducing the degree of slope to a safer angle would destroy the aesthetics of the bluff. As a result only marginal stability can be obtained. The primary measure taken is the reduction of water buildup behind the bluffs. This occurs through natural percolation and if left alone can apply enough pressure to cause massive break offs. Catch basins and drainage systems have been installed to divert the buildups.

TERRESTRIAL BIOLOGY

Santa Monica has engaged in an extensive tree planting program for many years. This has resulted in the city now having over 25,000 trees in excess of 120 species. Some of the types found in the city include magnolia, carob, eucalyptus and palm trees. The Department of Recreation and Parks has completed the planting program. Its policy is to only replace those trees now existing when needed and to not allow the removing of a tree if it is still living. The same type of tree is planted on a block with different types on adjoining blocks. This arrangement provides design consistency within individual blocks and a variety of landscaping within the neighborhood. It also lessens the chance of plant disease peculiar to one species, from spreading to the next.

The wildlife indigenous to this area have been fairly well displaced by urban development. The ones remaining are parasitic to man or otherwise able to adapt to the urban environment. Those include rabbits, rodents, skunks, and feral cats and dogs. There are no identified rare or endangered species within the area other than those indicated under Marine Biology.

ENERGY MANAGEMENT

Santa Monica has no electrical generating plants or other major sources of energy production. It can therefore take no direct action on controlling the usual by-products of energy production. It can, however, take steps indirectly by engaging in various actions which lessen the need for energy use. Such action will help to conserve those regional fuel resources upon which Santa Monica depends as well as benefits. It will also mitigate the impact on the air resources and general environment of Santa Monica which unconstrained energy use can affect.

It is therefore in the best interests of Santa Monica to pursue such activities whenever possible.

AIR RESOURCES

Historically, a part of the attraction of Santa Monica as a recreation/settlement center has been clean air and a pleasant Mediterranean climate. Increases in population with resultant increases in vehicle miles traveled have caused the deterioration of air quality over Santa Monica. Clean air is no longer the abundant resource it once was and pollution is effecting the quality of life both as a threat to health and environmentally. But locationally Santa Monica has an advantage, in that, although topographically and meteorologically a part of the Los Angeles Air Basin, pollution levels are not as high as those in Los Angeles. Diurnal changes in wind direction help horizontal dispersion inland or out to sea during day and night respectively; although vertical dispersal of pollutants is limited by frequent temperature inversions. The cities' primary goal for air is the elimination of all detrimental sources of air pollution.

QUALITY STANDARDS

The city's air quality is monitored by the Air Pollution Control District (APCD) at the northwest coastal station and measured in terms of the number of days per year pollutants exceed state air quality standards. The pollutants measured are:

ozone (O₃)

carbon monoxide (CO)

oxides of nitrogen (NO_x)

nitric oxide (NO)

nitrogen dioxide (NO₂)

sulfur dioxide (SO₂)

particulates

The following table indicates the number of days per year acceptable levels were exceeded in Santa Monica.

1973			1974+	
62	17	O ₃	51	14
28	8	CO	21	6
N/A	N/A	NO _x	N/A	N/A
N/A	N/A	NO	N/A	N/A
27	7	NO ₂	35	10
2	5	SO ₂	0	0
14	4	Particulates	N/A	N/A
Days/ Year	%/Yr.		Days/ Year	%/Yr.

+ APCD Figures

* WL Pereira Report

While there have been some reductions in the overall level of photochemical pollutants, overall air quality can be improved by further diminution of stationary and mobile sources.

SOURCES & CONTROL

The greatest detriments to improved air quality conditions are mobile sources of pollution: automobiles and trucks. For example, the strip of land between the Pacific Coast Highway and the shore (encompassing the beach parking lots and bounded by the city limits on the northwest end of the highway and McClure Tunnel, adjacent to the municipal pier, on the southeast end of the highway) constitutes .01% of Los Angeles County's land area.* Due to the intensive use character of this area as much as .5% of the county's air pollutants are generated there on a very active day.

This is a 1:50 ratio of land to pollutants produced.

A number of agencies, jurisdictions and programs already exist to cope with improvement of air quality, both for stationary and mobile sources. At the county level the Air Pollution Control District (APCD) deals with complaints or violations within its jurisdiction. Complaints received from local residents have been sent on to the APCD for enforcement. Lack of follow up complaints suggests remedial action taken by APCD was successful in mitigating or eliminating the offending source.

The Coastal Commission also deals with questions of air quality as it is effected by proposed construction within its jurisdiction. The Environmental Protection Agency (EPA) is concerned on a national scale with the maintenance of high air quality standards. To achieve these goals EPA has initiated a number of programs in the form of a coordinated transportation plan. Part of that plan is the Parking Management Plan (PMP). PMP seeks to improve air quality by reducing vehicle miles traveled (VMT) and by ensuring new or existing parking facilities do not exacerbate the amount of air pollutants.

BEACHES: COASTLINE RESOURCES

Santa Monica Bay and its environs comprise a very special resource to the citizens of Santa Monica as well as being important to the greater region it serves. Its value must be measured in a variety of ways to include its aesthetic and visual assets, its recreational benefits, and its contribution to the excellent climate that Santa Monica enjoys. The importance of this resource is underscored in this section by the inclusion of a special subsection which highlights the values of the citizens of Santa Monica by identifying four primary areas of community concern. This review is followed by the empirical evaluation of existing conditions as found in each of the remaining sections of the Element on Potable Water, Land Resources and Air Resources.

AREAS OF COMMUNITY CONCERN

The major natural resource unique to Santa Monica which most needs to be conserved to prevent wasteful exploitation, destruction or mismanagement is the beachfront and coastal area. This preservation should be designed to primarily protect (1) the visual or aesthetic resources, (2) unique physical structure of area (3) the maintenance of clean and adequate recreational area, and (4) public use and access to beach.

Protection of Aesthetic and Visual Environment

The aesthetic aspects of this section of beach are of prime concern as the panoramic view of Santa Monica Bay is fully visible, not only by beach goers, but from vantage points along Palisades Park. For continued enjoyment of the area, there should be ongoing efforts to prevent development that obstructs or detracts from visual environment, and efforts should be made to extend the natural park-like quality into adjacent areas.

Protection of Unique Physical Structure

The bluffs overlooking the coastline constitute a unique aspect to coastal environment as well as natural beauty and variety in an urbanized area. These should be maintained in their natural state for future generations. Additionally the natural bay and curved coastline, noted for both its beauty and historic significance should be maintained to preserve natural setting.

Protection of Clean and Adequate Recreational Area

Since the beach constitutes a major recreational resource both to residents of Santa Monica and the L.A. area as well as tourists, it is necessary to provide services for the safety, well being and enjoyment of those using area. High in priority is the need to preserve the enlarged beach (sand) areas to accommodate beach goers, and develop water and outdoor recreational opportunity such as tennis and volleyball courts, play areas, boating and picnic facilities.

Protection of Public Use and Accessibility

As a major recreational and natural resource, the enjoyment and use of the beach should be open and accessible to the public.

EMPIRICAL EVALUATION

Physical Setting

A complete description of the physical environment is not appropriate here. There are many documents devoted to an exhaustive analysis of this subject. The intent herein is to briefly refer to those segments which offer the highest impact on the community and those which are most likely to be impacted, (the most apparent subjects of planning).

One of the most significant features is, of course, the beach itself. The Santa Monica State beach is owned by the State of California but the city has responsibility for its operation and maintenance. The beach has been artificially expanded in depth between mean high tide and Pacific Coast Highway over the past 40 years because of the breakwater built in 1934. The normal ocean currents that continually shift sand along the coast are disrupted by the breakwater which acts as an obstacle to this littoral drift. The result has been the deposition of practically all littoral material onto Santa Monica State beach instead of a more even distribution along the rest of the coast. The beach has thus grown to approximately 700 ft. at its widest point. This effect has appeared to stabilize, but the breakwater is now deteriorating and the trend may eventually reverse itself. If the breakwater was to be removed the normal drift patterns would resume and the beach would shrink back to its natural size. On the other hand if it were to be restructured or increased in size it could cause the beach to expand even more.

The enlarged size of the beach has contributed to its use as a regional recreational center, both because of its increased holding capacity and because of the enhancement of its visual quality and general appeal. This effect is compounded by the fact that Santa Monica Freeway, a major collector of inland commuters, feeds directly onto the State beach. So the beach attracts more and is more accessible to a larger portion of the regional population than other beaches. Origin-destination studies conducted during August 1974* indicate a large percentage of people who frequent Santa Monica's beaches represent an extensive inland region. Of the fifteen southern California areas in the study only those which generated above 5% of the total vehicle trips are listed below; the remaining 7 areas add to less than 19% of the total 5470 vehicles which were checked.

Area	% of Total
Culver City, Santa Monica, Venice	14.5
San Gabriel Valley	12.5
Central Los Angeles	15.2
Burbank, Glendale	8.4
Palmdale, North Hollywood	8.3
Beverly Hills, Topanga	10.6
Van Nuys, Encino	6.6
Sepulveda	5.3
Others	18.6
Total	100.0

* Los Angeles Rapid Transit Study; California Department of Transportation.

The resulting impact on the community as well as the regional importance must be considered within those terms.

The regional and local importance of the beach makes it imperative to take measures that will conserve and protect it for future generations. It thus becomes necessary to impose development restrictions in areas where such development will degrade the coastal environment or interfere with the public's right to access. Recognizing the regional importance of the beach, resource management has to be accomplished on a regional as well as local basis.

Marine Biology

The animal life of the bay ranges from a variety of mollusks and crustaceans in the tidal zone to crabs, shovelnose sharks and stingrays in the subtidal zone (deep water). The California Brown Pelican and rarely

seen Double Breasted Cormorant have been designated as rare and endangered species within this area. Other than those birds there is no marine life which can be identified as endangered or suffering severely deleterious effects from pollutants. One significant source of disruption is the occasional proliferation of a microscopic red protozoan, *Gonejanlax polyhedra*, better known as the red tide. It is not known why these animals build up in such large numbers. They pose no health hazard but when they die off and begin decomposing they absorb extensive amounts of oxygen resulting in the possible killing of bottom dwelling organisms through oxygen-starvation. They also emit an offensive odor, which is relatively impossible to control.

Mineral & Oil

The only mineral activity in the past has been the removal of sand from the beaches for construction and other purposes. This has been discontinued and is no longer allowed. No other mineral exploration or mining has occurred or is expected.

Petroleum exploration is another matter however. The national shortage of oil and the expectation of vast oil reserves off the Southern California coast have put extensive pressures on Santa Monica Bay. The City of Santa Monica has jurisdictional powers to a three mile limit but beyond that it can exert little power. Reflecting the prevailing feeling of Santa Monicans against such development, all possible steps to avert it should be pursued.

Water Quality

The quality of water in Santa Monica Bay has been affected by two main sources: waste discharge and storm drainage runoff. The greatest impact comes from massive discharges from Hyperion Plant of the City of Los Angeles, with which Santa Monica contracts for its sewage disposal. Approximately 340 million gallons are discharged into the bay daily through two pipes extending 5 and 7 miles into the bay. The naturally high rate of diffusion keeps the bay well within health standards. The California Water Quality Control Plan has set forth biological standards which Santa Monica Bay has always met. However, the bacterial count has increased over recent years and water quality has been deteriorating. The State Water Quality Control Board is charged with monitoring the bay on a regular basis, and maintaining these standards.

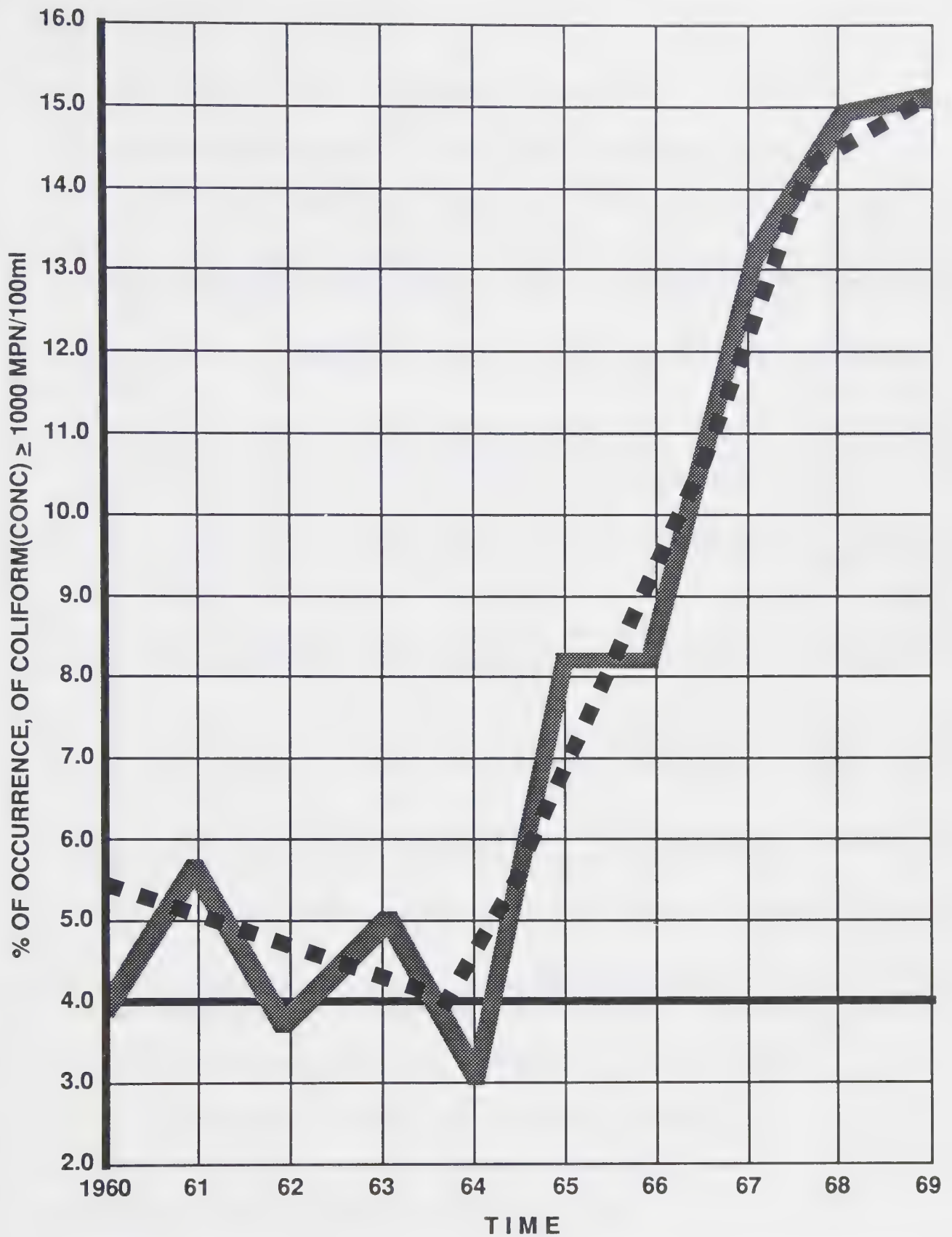
The present California Water Quality Control Plan for ocean waters set the following water quality objectives (SCCWRP, 1973, pp. 363-364):

- a. Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for body-contact sports, the following bacteriological objective shall be maintained throughout the water column: Samples of water from each sampling station shall have a most probable number of coliform organisms less than 1,000 per 100 mL (10 per mL); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 mL (10 per mL), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 mL (100 per mL).
- b. At all areas where shellfish may be harvested for human consumption, the following bacteriological objectives shall be maintained throughout the water column: The median total coliform concentration shall not exceed 70 per 100 mL and not more than 10 percent of the samples shall exceed 230 per 100 mL.

Plate I* (Page 11) illustrates the quality of water at Santa Monica State Beach relative to the assessment parameters of coliform concentrations. Plotted along the abscissa is the interval of time between 1960 and

1969. The ordinate shows the frequency of occurrence (percent) of coliform count exceeding 1,000 MPN (most probable number of organisms) per 100 mL. (SCCWRP, 1973, pp. 378).

Pico drain is the largest storm drain found at Santa Monica State Beach. The effluent within the drain has an average coliform count of approximately 6200 MPN per 100 mL (SCCWRP, 1973, pp. 380). Maximum MPN values range up to 70,000 while minimum readings have been below 4.5. The beach as a whole is fairly-well protected from these localized emissions due to its relatively high rate of diffusion. Although the rate of diffusion is fairly rapid, water-related activities should be kept a safe distance from storm drain outfalls. This distance should be approximately 50 meters given an average set of conditions.



ACTUAL DATA

BEST-FIT CURVE

Coliform Concentrations

Santa Monica State Beach
Plate I

POLICY STATEMENTS

- (1) The City shall increase the source of its water supply in accordance with the population.
- (2) The city shall protect and expand (when feasible and desirable) its underground water rights.
- (3) The city water division shall be charged with the responsibility of determining and maintaining the safe level of local well water extraction to obtain the highest possible production while avoiding the hazards of salt water intrusion.
- (4) The city shall actively participate in the protection of water shed areas affecting Santa Monica water supplies.
- (5) The city shall cooperate with adjoining water jurisdictions to investigate the feasibility of artificially recharging, spreading or other means of replenishing ground water basins, when the appropriate technology becomes available, and such action appears to be economically beneficial.
- (6) The city shall protect the city aquifers from contamination by controlling all forms of access or contact such as private wells, industrial dumping or any other type of intrusion into the aquifers which may affect the water quality.
- (7) The city shall continue to strive for higher quality water standards even though they may exceed those of recognized domestic and international agencies and organizations which develop such standards.
- (8) The Public Works Department shall identify and mitigate all potential sources of industrial or commercial pollution, which may adversely affect water supplies stored in city reservoirs or water being pumped into the city.
- (9) The city shall cooperate with adjoining communities for the purpose of reclaiming waste water and improving the sewage treatment processes to include secondary and tertiary treatment.
- (10) The city shall seek to resolve any dispute with the Federal government concerning flood control measures.
- (11) The Public Works Department shall continue to maintain adequate storm drainage and runoff systems, to accommodate flood control requirements.
- (12) The city will maintain the Santa Monica Breakwater in at least its present state.
- (13) The city will encourage maintenance of recreational aspects of the beach area.
- (14) The city shall seek to maintain public use and accessibility to beach.
- (15) The city shall protect the environmental quality of the beach.
- (16) The city shall preserve the scenic environment of the coastal areas, the boundaries of which will be specified in the implementation program section.

- (17) Any development occurring or proposed within the beach area shall be reviewed in terms of its impact on the beach environment.
- (18) The city shall actively participate in all regional, state and federal decision making processes concerning development in adjoining ocean water or land areas in which such development is regarded a serious threat to the continued environmental or aesthetic character of the coastline, or when such development may provide an opportunity to enhance the coast.
- (19) Any proposed mining transport or petroleum operations will be critically reviewed in terms of their impact on the character of the community and the quality of the environment.
- (20) The city should establish efforts to preserve the Palisades Bluffs from erosion or significant alteration as an integral part of the coastal environment.
- (21) The city shall continue the policy of preventing any development or construction that may undermine the safety of the Palisades Bluffs, both at the base and on Palisades Park.
- (22) The city shall encourage the seeding and planting of appealing foliage in vacant lots or expansive underdeveloped portions of developed parcels to mitigate soil loss during inclement weather and also to enhance the appearance of the community.
- (23) The city shall maintain its policy of replacing trees whenever it becomes necessary and of not permitting the removal of any city trees still living and in a healthy condition.
- (24) The city endorses the state standards for insulation requirements within newly constructed residential structures.
- (25) The Public Works Department shall continuously investigate new materials for street surfacing which will enhance energy conservation of vehicles.
- (26) Environmental Impact Reports shall be required for defined building projects located within specified Environmentally Sensitive Areas.
- (27) Transportation planning shall integrate low energy multi-modal transportation with a master parking plan, both of which shall aid in reducing excessive vehicle miles traveled and the resultant air pollution.
- (28) The city shall seek to obtain energy, where feasible, from non polluting sources and suppliers.
- (29) The city shall plan for a more effective public transit system as an alternative means of transportation.
- (30) The city shall encourage the use of vapor recovery technology using successful programs of other cities as guidelines.
- (31) The city shall expand the current building codes to require the use of new, as well as known, energy conserving technology and materials when they become available and are deemed practical in economic terms and functional application as well.

PROGRAMS FOR IMPLEMENTATION

- (1) The water division shall supervise the exploration and construction of new potable well water sites and renovation of existing equipment when it is determined to be in the best interests of Santa Monica.
- (2) In order to ensure water rights at those well sites outside the city boundaries the city should optimize production at those sites and increase that production whenever possible, while remaining within safe limits to avoid salt water intrusion.
- (3) Monitoring programs shall be maintained to insure constant adherence to prevailing standards of water quality.
- (4) New methods for the monitoring of water quality should be investigated to ensure all aspects of quality testing are considered.
- (5) The water division shall protect the potable water system from accidental or malicious introduction of contaminants.
- (6) The city should insure the identification and regulation of any construction or activity which is likely to make direct contact with the city's underground aquifers or which may otherwise pose a potential hazard to the quality of water in those aquifers.
- (7) An industry that has produced pollutants in excess of city standards shall pay or remove that portion of its pollutants from whatever water supply is affected.
- (8) The city should consider extending storm drain pipes further out into Santa Monica Bay to lessen any contact between recreation users of the beach and deleterious materials which may be deposited from street runoffs.
- (9) The city should seek federal, state and regional funding to maintain and develop Santa Monica beaches as a recreational asset.
- (10) The city shall determine the rate of deterioration of the breakwater and the resulting effect on littoral drift and the beach and shall seek federal, state and county funding for the study and any subsequent repair of the breakwater if such an endeavor is determined to be worthwhile.
- (11) The city should encourage the state to utilize and open for public access all property between the mean high tide line and the major highway adjoining the beach, presently owned by the state.
- (12) The zoning ordinance should be modified to restrict commercial use, on the beachfront, to facilities which serve public needs for service or recreation.
- (13) The carrying capacity of the beach, in numbers of people and vehicles, should be determined in order to avoid significant or adverse environmental impacts. Efforts should be made to prevent exceeding these capacities by limiting parking diverting traffic to other areas and encouraging the use of alternative recreational facilities, as well as any other acceptable measures which will facilitate this objective.

- (14) The city shall establish liaison with those federal and state agencies responsible for granting permission for development in coastal waters for the purpose of registering the city's official views on such developments.
- (15) Design standards should be developed and imposed on new construction to increase open space and landscaping requirements on Ocean Avenue to enhance its appearance.
- (16) Planning measures should be initiated which will regulate high density and high intensity development in the "coastal area".
- (17) The city shall seek to utilize computerized condition signs on the Santa Monica freeway to warn recreational users when the state beach has reached its carrying capacity and that they should go to other facilities.
- (18) The city shall continue its program of draining water from behind the Palisades Bluffs to avoid soil slippage off the bluffs and shall investigate other programs of engineering to prevent further erosion of the bluffs.
- (19) Zoning should prevent any building on top of or on the face of the Palisades Bluffs which constitutes a threat to their safety or appearance, or any encroachment on openness and natural beauty of Palisades Park.
- (20) The city shall adopt improved standards on insulation of newly constructed buildings for purposes of energy conservation.
- (21) The city's building code should require the installation of openable windows and operable sash and vents in the exterior walls of all new buildings when a controlled temperature environment is not absolutely necessary. Such requirements will lessen the need for air conditioning and thus reduce energy consumption.
- (22) The city shall study the feasibility of peripheral parking facilities with possible shuttle connections.
- (23) The Public Works Department shall seek to coordinate traffic lights for a more even flow of traffic.
- (24) The city shall actively urge legal controls for cleaner engines through state and federal agencies.
- (25) The city shall increase planting of vegetation known to be effective in pollutant absorption.

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SUMMARY OF FINDINGS

The Conservation Element is inherently general in its nature due to the comprehensive approach it takes. It therefore need only be accompanied by an environmental impact report containing the same degree of specificity.

The adoption and implementation of the Conservation Element will not cause any significant adverse environmental impact to the city. On the contrary the basic intent of this element is to avoid actions which would be detrimental to the natural resources of Santa Monica and thereby enhance the environmental quality and amenities of the city.

DESCRIPTION OF ELEMENT

The Conservation Element addresses itself to the identification of natural resources and delineates goals, objectives, policies, and programs which are aimed at protecting and preserving those resources. The analysis and recommendations offered within the Element apply to all the land within the contiguous boundaries of the City of Santa Monica. It also considers those areas adjacent to the city which may influence or have an effect on the natural resources of Santa Monica. The Conservation Element, when adopted, will become an element of the General Plan of the City of Santa Monica.

GOALS AND OBJECTIVES

The goals and objectives of this element are taken from the policy plan formulated by the Citizens' Advisory Committee. They are:

GOAL: Preservation of the ecological balance and natural resources of the city and conservation of the energies and materials without serious interference with community needs.

OBJECTIVES:

1. Preserve areas that should be permanently protected for future generations due to their unique structure, historical importance, and natural beauty.
2. Recognize and maintain the natural coastline as a major physical resource.
3. Seek regional funding for the maintenance and development of the Santa Monica beaches as a recreational asset.
4. Consider environmental impacts as a decision-making factor in planning.
5. Sponsor transportation modes which reduce energy consumption and air pollution.
6. Encourage activities and efficient operations which favor energy conservation.
7. Insure that those resources necessary for the maintenance and enhancement of the health and well being of the city be conserved and protected.

GOAL: An atmosphere free of air pollution.

OBJECTIVES:

1. Eliminate all detrimental sources of air pollution.
2. Encourage lowest feasible emission from stationary and moving sources.
3. Cooperate with and support federal, state and regional efforts to reduce smog and pollution.
4. Reduce the total volume of vehicular traffic.

GOAL: A community whose appearance is in harmony with itself and its setting.

OBJECTIVES:

1. Establish certain areas as visually important due to location, architectural or natural beauty, and establish general design criteria for new development in these areas.
2. Conserve and enhance the appearance of our oceanfront.

CONSERVATION ELEMENT CONCEPT

The Element proposes that important natural resources be identified and that policies and programs be adopted which will seek to conserve and protect those resources.

The Element further attempts to incorporate the desires set forth by the Citizens' Advisory Committee in the Goals and Objectives Document with the state guidelines for general plans. This is done with respect for both and with the intention of accommodating each of them.

ENVIRONMENTAL IMPACT OF THE PROPOSALS

The adoption of the Conservation Element should not imply that new actions must be instigated which would radically alter the character of Santa Monica in order to conserve its natural resources. Rather, it is intended that the resources which now exist be conserved in their present state and that proper management be employed to ensure their future beneficial use.

As recreational uses continue to accelerate, the beach facilities at Santa Monica will have greater demands for their utilization. The Conservation Element will help to provide these recreational opportunities for as many people as possible without causing detrimental or irreparable damage to the coastal resources.

Adverse environmental impacts are likely to occur in the following areas: (1) restriction of personal vehicle miles traveled, (2) construction of new facilities to accommodate increased recreational needs, (3) construction of new well sites, (4) gradation or diminution of the beach dependent upon the policy regarding the breakwater, and (5) energy conservation measures.

- (1) The restriction of personal vehicle miles traveled would actually be beneficial to the environment. But in terms of the traditional degree of mobility provided citizens it would pose a social impact on citizens accustomed to unlimited use of their private vehicles. Adjustments should be made in personal travel patterns which would provide trade-offs between convenience and improved environmental quality through cleaner air and reduced noise.
- (2) The construction of new facilities to accommodate increased recreational needs would have both short term and long term impacts. Building activity may cause temporary disturbance of the environment by the introduction of heavy construction equipment and construction activity which would generate noise, add some degree of pollution, and disrupt the normal activity. The level of disruption can only be determined by the particular development's intensity. The beach area is likely to receive the greatest impact in these terms.

The long term effects may be more adverse. New facilities will increase the recreational capacity and therefore generate added use. Since Santa Monica beach is a regional resource a large majority of its users rely on the private vehicle to travel to the beach. Any increase in traffic affects the air quality by greater emission of pollutants, increase in noise levels and visual disruption. In addition greater emphasis is placed on police and lifeguard services, littering is likely to increase and aquatic habitats will have that much more difficulty in surviving. The relative degree of all these impacts depends on how much development is promoted or allowed to occur.

- (3) Short term effects of new potable well construction would include generation of noise and the general disruption of normal activity typically brought about by extensive construction. Long term adverse effects may include visual deterioration, diminished land values adjacent to the well sites and destruction of existing foliage. The most serious impact is the potential for harm to the aquifers by overdraft of the wells, which can be avoided by proper management.
- (4) Removal of the breakwater or allowing it to deteriorate would cause a disturbance of the artificial beach equilibrium. Allowing normal wave erosion to occur will result in the gradual depletion of the existing beach, thereby lessening the carrying capacity. A policy to maintain the breakwater through restructuring would ensure the continuation of the existing environment. However this would require an economic impact to be incurred by the taxpayer to finance such construction. The economic loss would be offset by economic returns on a continued and increased recreational use.

- (5) Further economic impact would occur with the requirement for insulation of new buildings and other materials as they become available. This would be a short term impact and over the long term the savings from energy conservation would likely outweigh any initial cost.

ADVERSE EFFECTS WHICH CANNOT BE AVOIDED

The adverse impacts described depend on the policies pursued by the city. They cannot be avoided if the Conservation Element is implemented as proposed. However, it is expected, that these effects will be limited in scope and frequency of occurrence.

The benefits to be derived from the preservation and enhancement of the city's resources outweigh the potential for adverse effects. These resources are scarce, diminishing, and irreplaceable when lost.

MITIGATION MEASURES

Various steps can be followed to mitigate the effect of the adverse impacts which have been described. Construction of recreational facilities can be performed at non-peak recreational periods when possible. Temporary barriers and equipment muffling devices can be utilized to decrease noise. Landscaping and design techniques can be used to conceal unsightly structures such as well pumps, or to blend new facilities with the surrounding environment.

Alternative means of transportation can be developed which will provide greater mobility than current means of public transit. Regional network and systems can offer a viable substitute to the private vehicle for recreational purposes. Greater public support and use of such transit facilities would enhance their economic feasibility. Land use patterns would be employed which would minimize the need for travel by providing localized services.

The carrying capacity of the beach can be controlled by limiting or diverting access. Also, the capability for handling increased numbers of people can be bolstered by such means as enforcing more stringent laws, increasing man power for those services which are burdened and optimizing the use of facilities to avoid under-utilization in isolated areas.

ALTERNATIVES TO THE PROPOSED ACTIONS

Alternatives to the programs suggested in the Conservation Element range from no action at all to more severe methods of conservation. The degree of action taken depends on the priorities established by the city and its citizens as related to particular conservation programs. These priorities in turn reflect the concern and level of dedication that is exhibited towards each and all of the city's resources.

The alternative of no action or no plan would likely cause greater environmental impact than any measures intended to preserve resources. Although individual activities within the city may appear to have no impact, the cumulative effect of many such activities can often render significant impacts to the city, the severity of which depends on the circumstances. To have no conservation plan would leave these cumulative impacts unchecked, as well as those singular developments and activities which in themselves can cause a significant environmental impact.

Areas most likely affected by more or less severe conservation measures would include (1) the beach, (2), the Palisades Bluffs, (3) the ground water basin, and (4) air quality.

- (1) The beach area can increase, decrease or maintain its current range of recreational facilities. To expand facilities would accommodate ever growing regional recreation needs and thus lessen the social impact in this regard. However, it would cause a greater impact on the environment than is now realized. To decrease would reverse the reaction by providing greater protection of this resource but lessening the access and means of enjoying it, thus creating a social impact.
- (2) The issue of the bluffs presents a less difficult situation. To reduce current conservation measures would most assuredly increase the potential for severe impact particularly from massive earth slippage. Engineering studies have indicated that no conservation measures can be undertaken to protect the bluffs more extensively without radically altering their basic character, which would defeat the intent of such measures.
- (3) The extraction of well water from local ground water basins may be increased from current levels to partially meet growing demands. Since the water which recharges these basins renews itself naturally, the water itself is not in danger of depletion. However, the aquifers which store this water can be damaged if too much water is removed from the well resulting in an overdraft. An overdraft can affect the quality of well water as well as the capability to pump it by altering the structure of the aquifers. Therefore, any decrease in a program of extracting well water would aid in the conservation of that water source. A proper management program including continued survey to avoid overdraft would allow for a balance to be struck between optimum utilization of this resource and protection of its viability as a deliverable system.
- (4) The quality of air in Santa Monica is, to a great extent, dependent on forces outside the geographic boundaries and control of the city. Consequently, the means for affecting the conservation of this resource are limited and as such the impact of implementing these means are similarly limited. The primary method for conserving the air quality is by reducing total vehicle miles traveled and thereby reducing total emissions. Since Santa Monica is constrained in how extensively it may affect air quality, it seems essential that the city maximize all available means. Alternatives to a maximum effort would include less restrictions on vehicle miles traveled, thus causing more emissions to be produced. This would contribute to the gradual deterioration of air quality, but maintain personal mobility.

Policies which would more greatly restrict personal vehicle use would have the social impact of decreasing mobility, while improving the level of air quality. There should be new forms and modes of public transit developed in order that a reasonable degree of mobility could be maintained. Whatever balance is achieved must be a determination of public policy reflecting the priorities of mobility and air quality. Other factors affect air quality but the most severe impact is realized when considering this primary source of air pollution - the automobile.

LONG TERM VERSUS SHORT TERM RELATIONSHIPS

The intent of the Conservation Element is that its programs have a long term benefit derived from their implementation. The basic goal is the continued conservation and enhancement of the city's natural resources. Through the comprehensive identification of both essential and desired resources and the development of programs for their protection, scarce and sometimes irreplaceable resources can be preserved for future generations, rather than providing only short term benefits.

IRREVERSIBLE ENVIRONMENTAL CHANGES

The plan does not propose any action which would cause irreversible changes in the environment. On the contrary it attempts to delineate ways of avoiding irreversible changes. This is particularly true when considering the delicate balance currently obtained in the stabilized condition of the Palisades Bluffs. A less extended effort may result in deterioration of this beautiful resource to a point where it could not be returned to its natural state, and thus would be permanently lost.

GROWTH INDUCING IMPACT

The Conservation Element is not designed to promote growth in the city but is designed to conserve resources. The primary aspect of the plan which may indirectly affect growth is in regard to the development of new local wells. The basic intention of this expansion is to meet projected needs for potable water sources as the city grows naturally. It has been speculated that by accommodating projected growth that that growth is actually stimulated. This occurs because by expanding the city's ability to grow it heightens the city's appeal as a place to live. However, it is extremely difficult to assess the validity of this assertion and isolate it from all other growth inducing factors. One conclusion that can be drawn, though, is that by not expanding water resources any population growth within the city, whether natural or otherwise, would most certainly be impeded, if not precluded.

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